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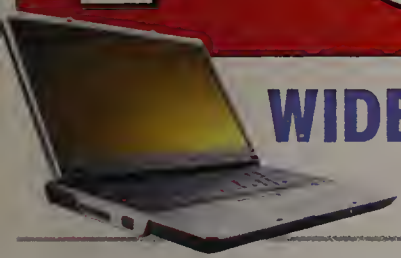

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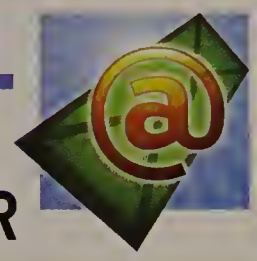

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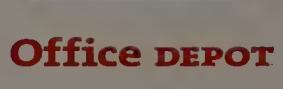

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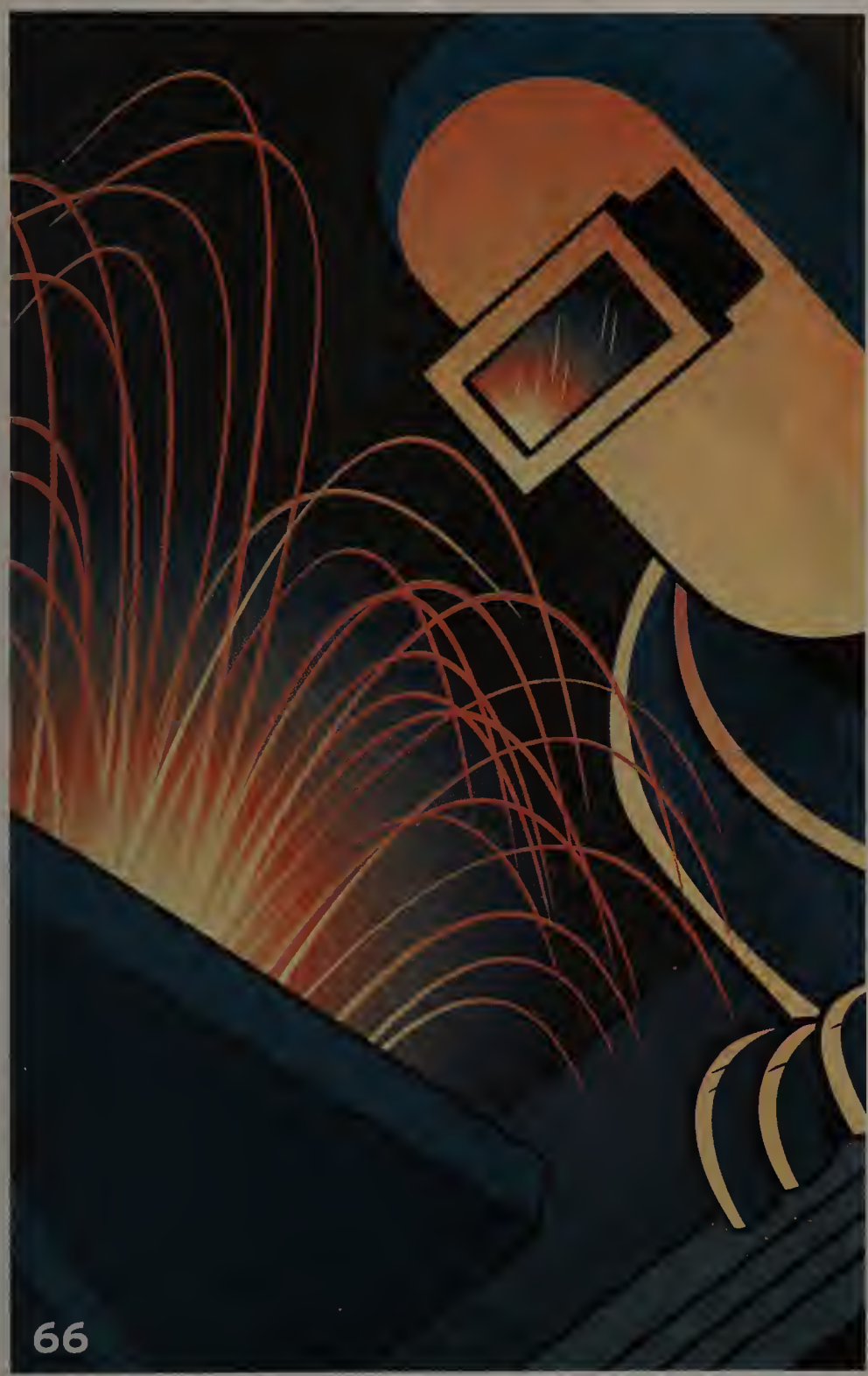

FEATURES

E-MAIL

78 Inbox Tamers

If you consider e-mail essential, you need a tool that can organize all your messages and keep viruses and spam at bay. Web-based mail services are now a great option, offering spelling checkers, expanded storage space, and other new features. Desktop software, meanwhile, remains superior for extras such as collaboration functions. Learn what we think of four Web services and four client applications.

MOTHERBOARDS

97 Battle of the Boards

The motherboard is the heart of a PC. If you're upgrading your system or building one from the ground up, the board you buy will be one of your most critical decisions. We've tested the latest PCI Express models based on Athlon 64 and Pentium 4 chip sets to see which boards perform best, offer the richest features, and prolong your PC's useful life with cutting-edge technologies.

COVER STORY

66 Supercharge Your Software

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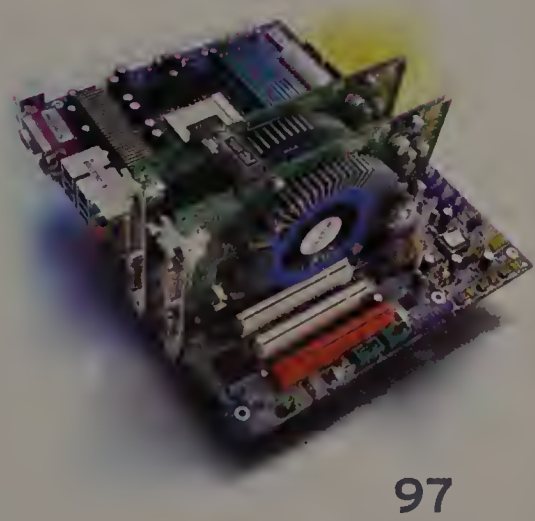

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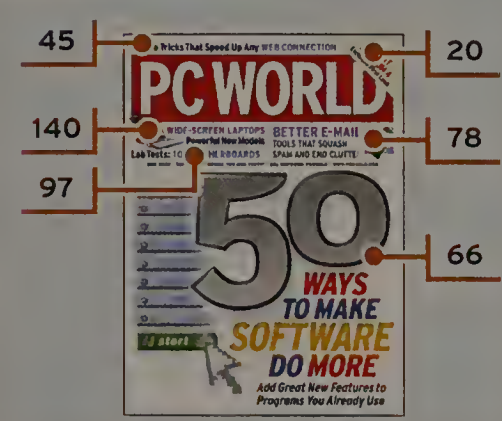

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Supersmall PCs: Do these stylish boxes have the power and flexibility you need? We put them to the test.

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CONTRIBUTING EDITORS

Steve Bass, Scott Dunn, Steve Fox, Judy Heim, Stuart J. Johnston, Anne Kandra, Dan Littman, Stephen Manes, James A. Martin, Scott Spanbauer, Lincoln Spector, Kirk Steers, Carla Thornton, Dan Tynan

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James Motch

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Elliott S. Kirschling, Jeffrey Kuta

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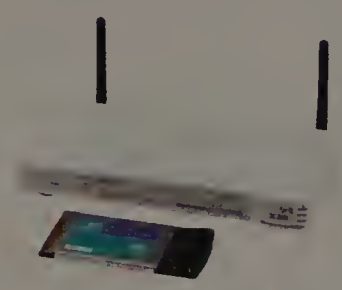

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HARRY McCRACKEN

Want a PC Done Right? Do It Yourself!

Building your own machine can be a smart move. And it's never been simpler.

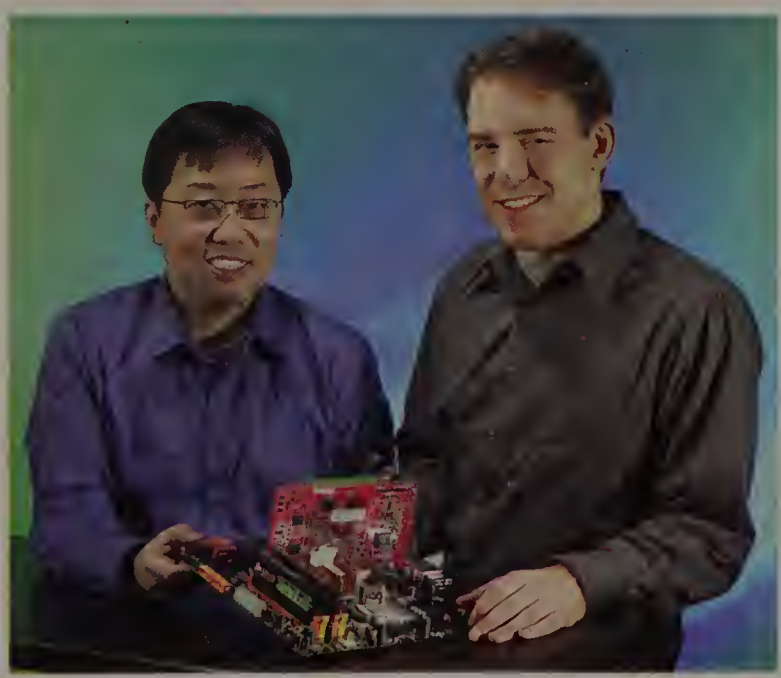
THIS ISSUE'S COVER represents a minor milestone in *PC World* history: As far as anyone here recalls, it's the first to sport the word *motherboard*. The word's on the cover because motherboards are in the magazine, in "Battle of the Boards" (page 97), our review of these key PC components.

The boards are in the issue mostly because of Senior Associate Editor Eric Dahl. For what seems like eons, he's been advocating that we do a thorough, lab-tested look at motherboards. Until recently, I was irrationally dubious—yes, Eric, I'm officially admitting it—but now I'm a believer. Heck, I bet that the article, by veteran contributor Jon L. Jacobi, will be a hit.

Has *PCW* gone all geeky? Possibly, but so has the world. When I bought my first motherboard a dozen years ago, I had to ferret one out at a tiny mom-and-pop store where tech expertise was plentiful but English was scarce. That was then. Today, mainstream merchants such as CompUSA stock motherboards, cases, power supplies, and other accoutrements of the system builder's art.

They sell those products to folks who've discovered that it's surprisingly easy to assemble a PC with the right stuff for particular tasks, from heavy-duty database work to high-end home entertainment. If you feel ready to join them, consult our ratings—and consider these further tips.

Pick your parts carefully: The best thing about building your own PC is that you get to choose each component. But that can also be a challenge. Shameless plug: Check out www.pcworld.com/reviews for regularly updated rankings of hard drives, graphics cards, and other components.



CHAIRMEN OF THE BOARDS: analyst Wang (left) and editor Dahl.

In the case of motherboard speed, "all the boards with the same chip set are pretty close," reports William Wang, the PC World Test Center performance analyst who evaluated boards for our review. But as Eric notes, "You need to look at each board and the features it has. Some manufacturer will decide, 'Yeah, we want FireWire 800 support.' Or someone will say, 'Let's throw an extra RAID controller out there.'" Some companies offer more design niceties such as slots that don't block access to each other, and some include meatier manuals—factors we took into account when choosing Best Buys.

Scavenge...if you can: If you have usable parts hanging around from systems you already own, great. But repurpose the components judiciously—your new PC may demand faster RAM, a more potent graphics card, or a larger hard drive.

Don't rush it: The build is most likely to go well if you proceed at your own pace and you allow time for troubleshooting. If you don't feel ready to start from scratch, consider a "bare-bones PC," a case–motherboard–power supply combo that you fill out with other components. Or work with a dealer who'll build a system made up of parts you specify; many local retailers have been doing this for years, and even Best Buy now does so through its Geek Squad service. Either option gives you much of the upside of a do-it-yourself system with less labor.

Build for tomorrow: Just as with off-the-shelf systems, it's smart to think ahead. That may well mean planning your new machine around a 64-bit CPU, even though 64-bit Windows is still in beta and major applications are months or years away. (See our first look at Intel's new Pentium 4 processor in "Tested: 64-Bit P4," page 20.) "We don't know how long it will take software to catch up with hardware and the OS, but it's good to have the option," says William.

Eric puts it another way: "Americans love redundancy and future-proofing, and as much technology as we can buy. I'm glad we finally did a full-on examination of motherboards, with the Test Center involved." Me too. As long as *PCW* readers keep building computers, we'll keep building articles like this one. ■

Visit Editor in Chief Harry McCracken's blog at blogs.pcworld.com/techlog.

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NEWS & TRENDS

EDITED BY EDWARD N. ALBRO

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Tested: 64-Bit P4

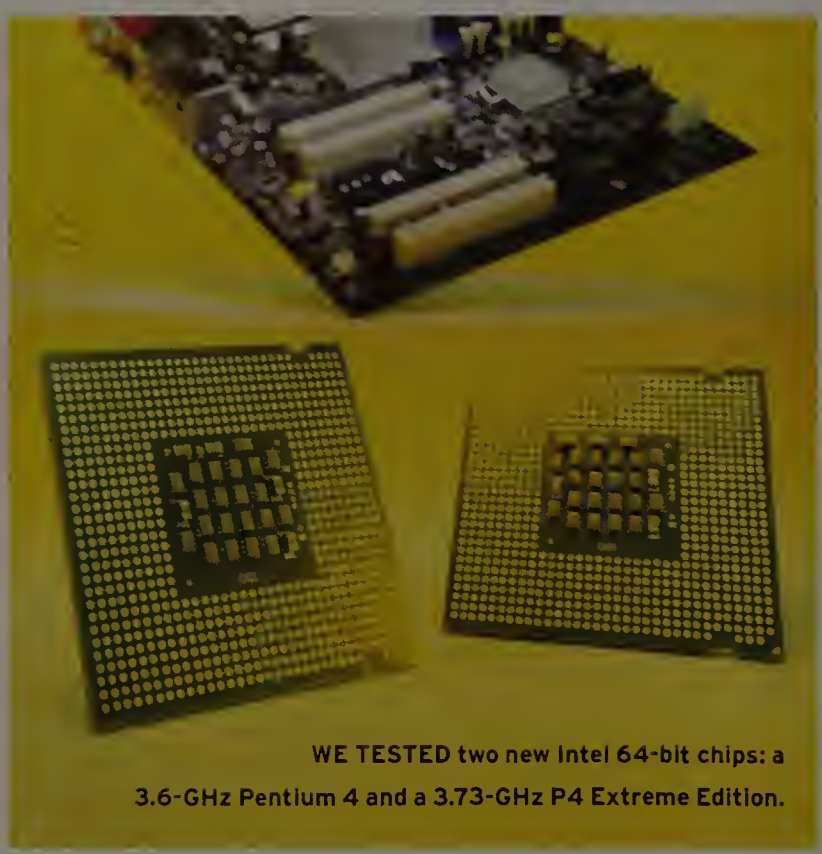
INTEL HOPS ON THE 64-BIT DESKTOP BANDWAGON WITH NEW PENTIUM 4 CPUs. THESE CHIPS ARE FAST, BUT AMD'S ATHLON 64 FX RETAINS THE SPEED CROWN. BY JON L. JACOBI

TEST Center

INTEL'S 64-bit Pentium 4 and Pentium 4 Extreme Edition desktop processors launched in February, giving the 64-bit computing future that started with AMD's Athlon 64 chips even more traction.

What does 64-bit computing offer you beyond today's 32-bit platform? We compared two of the new chips, the 3.73-GHz P4 EE and the 3.6-GHz P4 660, with a 32-bit 3.8-GHz P4 (the fastest 32-bit P4), a 2.6-GHz Athlon 64 FX-55, and a 2.4-GHz Athlon 64 3800+. Results are mixed: You'll get a slight boost over a 32-bit P4, but you will pay about $100 to $200 more for an Intel PC than for an AMD one with similar or slightly better performance.

Intel also has implemented its 64-bit extensions on P4 chips at 3 GHz to 3.4 GHz, and will do so on forthcoming P4 and Celeron CPUs. The new P4s also get a boost in their on-board L2 memory cache from 1MB to 2MB. You won't need a new motherboard for the new chips, but to get the most out of their 64-bit capabilities, you will need to upgrade your BIOS and, of course, run a 64-bit operating system. Microsoft's 64-bit Windows XP Professional X64 should be generally available in late April; it will run on PCs using both Intel's and AMD's 64-bit chips (for a preview of 64-bit Windows, see "XP Goes to 64 Bits" in the March issue, find.pcworld.com/47494). Systems with 64-bit P4 and P4 EE CPUs are already on sale.



WE TESTED two new Intel 64-bit chips: a 3.6-GHz Pentium 4 and a 3.73-GHz P4 Extreme Edition.

One other chip is entering the desktop fray: Intel's Pentium M, originally designed for mobile PCs. We take a look at one of the first desktops to use this CPU in "Pentium M Inside," on page 21.

CLOSE RACE

WE TESTED THE 64-bit processors with both 32-bit Windows XP Professional and Release Candidate 2 of Windows XP Pro X64; the 32-bit P4 was tested only with standard Windows XP Pro. We

PHOTOGRAPHS: MARC SIMON; ILLUSTRATION: GORDON STUDER

PENTIUM M INSIDE

THOUGH IT WAS DEVELOPED primarily to minimize power consumption, the Pentium M mobile chip has always been an excellent performer. Clock cycle for clock cycle, it's on a par with the Athlon 64 and is much faster than a Pentium 4, and PCs using it run quieter because it needs fewer fans. For computers that stay on all day or even most of the day, the power-saving potential is substantial, and such quieter systems might persuade some users to place them in their living rooms. Given those facts, it might seem odd that before AOpen and DFI, no one thought to bring out a Pentium M desktop motherboard.

AOPEN'S EY855-II XC Cube desktop system sports a cool 1.7-GHz Pentium M processor.

We tested the $965 AOpen EY855-II XC Cube system with the 1.7-GHz Pentium M, AOpen's i855GMEm-LFS board, 512MB of RAM, an 80GB hard disk, and integrated graphics. It earned a score of 75 on WorldBench 5, which is on the lower side of average for laptops in this CPU class, but about on a par with 2.8-GHz Pentium 4 desktops. Note, too, that, like DFI's 855GME-MGF board, Aopen's model currently uses the older Pentium M chip set, which lacks some recent improvements to the Pentium M platform, including support for dual-channel DDR2 memory and the PCI Express bus.

Though good performers, Pentium M desktops are a bit of a hard sell because of their cost. For about the same price as the AOpen Cube, you can get a PC with a 3-GHz P4, faster discrete PCI Express graphics, a similar or slightly bigger hard drive, and a monitor or LCD flat panel thrown in, plus speakers. Even if you build your own system, you'll still be paying $100 to $250 more for a Pentium M chip than for a high-end Pentium 4 or Athlon 64 chip, and over $100 more for a motherboard to go with it.

There is another alternative: You can now get Asus's CT-479 upgrade adapter for your older, 400-MHz or 533-MHz Pentium 4 motherboard and drop in Pentium M chips from 1.3-GHz to 2.26-GHz. You're still not getting PCI Express, but it may be a more appealing option since you're reusing components.

used different motherboards for the AMD and Intel platforms in our test PCs but used the same 160GB Seagate hard disk and NVidia GeForce 6800 graphics card with 256MB of RAM. The Intel test systems used 1GB of 533-MHz DDR2 memory, while the AMD ones had 1GB of DDR400 RAM.

The Athlon 64 3800+ and the 3.6-GHz Pentium 4 scored so close to one another on WorldBench 5 under 32-bit Windows that users wouldn't notice a difference (see chart). The gap was slightly more noticeable between the Athlon 64 FX-55 and the P4 EE, but still under 10 percent. Note, though, that only about two-thirds of WorldBench 5 apps run on XP X64—and in many cases (not shown in the chart), both AMD's and Intel's CPUs lost ground with the 64-bit OS—so it's difficult to predict what the final total would have been. The 32-bit and 64-bit P4 CPUs performed essentially the same on WorldBench 5.

However, the 64-bit P4 did show a slight performance increase over the 32-bit P4 in Unreal Tournament with a 32-bit operating system at the lowest resolution we tested (1024 by 768). Test scores using AMD's and Intel's 64-bit processors showed mild drops with Unreal Tournament going from a 32-bit OS to a 64-bit one. Still, everything else being equal, we're convinced that you'll lose little or nothing with Intel's 64-bit extensions.

PROS AND CONS OF RUNNING AT 64

UNTIL XP PRO X64 ships, most users—save those running Linux, which can already take advantage of 64-bit CPUs—won't derive any benefits from 64-bit computing. Even when the operating system ships, only applications optimized and recompiled to take advantage of the new capabilities will deliver any performance increase. Note also that the main boon of 64 bits is the ability to handle larger amounts of data and at higher resolutions, not speed. That means a 64-bit PC will be able to juggle far larger databases and spreadsheets, a ▶

IN BRIEF

Tidbyte

WILHELM RATINGS: Wilhelm Imaging Research, a developer of respected tests for projecting inkjet photo print longevity, has launched a certification program for printers, inks, and papers. To qualify for a WIR Certification seal on its packaging, a product must be projected by WIR tests to produce prints that will last 25 years in standard illumination conditions, and at least as long in album/dark storage conditions. Products from Epson, Hewlett-Packard, and Lexmark earned the first WIR seals.

Product Pipeline

NETSCAPE 8: On the heels of Microsoft's announcement of plans for Internet Explorer 7, America Online has posted a public beta of Netscape version 8 (find.pcworld.com/47478) for Windows, with a shipping release likely by the end of April. Netscape 8's security features include the ability to adjust settings based on whether a site is trusted or not. For example, it warns you when you go to a phishing or spyware site that appears on a list that's updated several times a day.

lot more on-board memory (up to 64GB with Intel's 64-bit solution and 1 terabyte with AMD's version), and higher resolution in games, audio, and video, but it will not give huge performance boosts.

A couple of other caveats before you jump the 32-bit ship: 32-bit drivers don't work with Windows XP Pro X64, and vendor support for older hardware will probably be skimpy. Companies are reluctant to spend money updating drivers for products they no longer sell. If you want to hold on to older hardware, you might have better luck with 64-bit Linux since there's often someone, somewhere who will take the time to write drivers for legacy equipment.

And productivity software vendors won't be stampeding to port their apps to 64-bit Windows for quite some time. A number of 64-bit games are on the way, along with several audio and video apps. Cakewalk's Sonar X64, a 64-bit high-end audio recording app, is already available as a trial version from the company's Web site, but few other 64-bit programs have yet appeared.

ONE CHIP, TWO CORES

DESKTOPS WILL GET another boost from dual-core CPUs, which are expected to arrive in the second half of this year. Many vendors already offer Pentium or Athlon systems that can use two or more processors, but dual-core CPUs will share the same piece of silicon instead of just the same motherboard. This neatly improves multitasking performance without increasing clock speed—something Intel's been having problems with on the Pentium 4. Better multitasking helps in a number of scenarios. For instance, one of the cores could focus on burning a DVD while the other recalculated a spreadsheet or performed a database search. Just don't expect huge speed gains while working in today's single applications unless they perform simultaneous tasks, as the multithreaded Adobe Photoshop does.

> A 64-bit caveat: 32-bit drivers won't work with Windows XP Pro X64, and vendor support for older devices may be skimpy.

Intel announced its new dual-core Pentium Extreme Edition 840 and Pentium D processors in March, and demonstrated working dual-core machines from Dell and others (none are yet available for testing). Unlike with the new 64-bit chips, you can't plug the dual-core CPUs into current systems because, while they use Intel's current LGA775 socket, they require motherboards using yet-to-be-released 955X or 945 chip sets. AMD showed a dual-core Opteron server at LinuxWorld in late February, and plans to ship its desktop dual-core Toledo Athlon 64 CPUs later this year. The Toledo will require only minor tweaks to your BIOS, not a new motherboard, and it plugs in to current Athlon 64 sockets.

Dual-core CPUs hold a lot of promise for users who juggle multiple tasks, but AMD, for one, has indicated that high-speed single-core chips will remain the top performers at least until year's end.

If you're in the market for a fast system today with some hooks into tomorrow's 64-bit world, either an AMD-based or Intel-based 64-bit model will serve. Intel PCs are a bit slower and pricier than comparable AMD ones, but the performance gap is slim, so Intel fans won't lose much.

TEST REPORT

INTEL'S 64-BIT CHIPS NARROW THE GAP WITH ATHLON 64

THE ATHLON 64 FX-55 test system remains the champ, but Intel's two P4 systems show more gains with 64-bit XP in some tests.

PROCESSOR[1]	WorldBench 5 score (Faster)	Unreal Tournament 2003[2]		TIME (IN SECONDS) TO RUN: ACDSee PowerPack 5		TIME (IN SECONDS) TO RUN: Photoshop 7.0.1	
		32-bit XP	64-bit XP	32-bit XP	64-bit XP	32-bit XP	64-bit XP
3.73-GHz Pentium 4 EE (64-bit)	101	342	333	530	459	334	349
3.6-GHz Pentium 4 660 (64-bit)	99	330	321	542	475	346	360
3.8-GHz Pentium 4 (32-bit)	100	321	n/a	526	n/a	329	n/a
2.6-GHz Athlon 64 FX-55 (64-bit)	108	**402**	**383**	**462**	**452**	**300**	**329**
2.4-GHz Athlon 64 3800+ (64-bit)	102	360	346	488	480	321	354

TEST Center **FOOTNOTES:** [1]Intel-based processors were tested with an Intel D925XECL2 motherboard; AMD-based chips were tested with a Chaintech VNC4/Ultra motherboard. [2]Frames per second at 1024 by 768 resolution using 16-bit color. **HOW WE TEST:** All systems were tested with WorldBench 5 under Windows XP Professional; for test details see www.worldbench.com. For Unreal Tournament 2003, we measured frame rates during a fly-through of one game level for all configurations. We also tested 64-bit-capable chips with select applications from WorldBench 5 and Unreal Tournament with Windows XP Pro X64 (Release Candidate 2). A higher score is better on WorldBench 5 and gaming tests; lower is better for application tests. Bold denotes best score. **CHART NOTES:** n/a = not applicable; 64-bit tests were not run on this system. Systems in italics are comparison units.

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STORAGE

PC Drive Reaches 500GB

DRIVE CAPACITY SOARS TO A NEW HIGH AS MAKERS BEGIN TO TURN TO A NEW RECORDING TECHNOLOGY.

HITACHI'S NEW DESKSTAR 7K500 drive marks several milestones in the storage industry: It's the first desktop hard drive to reach 500GB and one of the first to use the speedy new SATA II interface. In terms of how it stores data, though, the Deskstar may be among the last of its kind, as drive manufacturers begin to approach the limits of how densely they can pack data using today's standard recording technology.

Demand for greater capacity continues to rise due in large part to a growing need for music and video storage on PCs and consumer electronics devices. To meet that need, storage vendors are turning to new recording technologies. The first of these, perpendicular recording (see "New Drive Technology," right), will debut from Toshiba this year.

DATA PEAK

HITACHI'S 500GB DRIVE will be available in two versions: a $500 drive featuring the older parallel ATA interface and an 8MB data buffer, and a $520 model with a 16MB buffer that uses the 3-gigabits-per-second Serial ATA II interface (which is backward-compatible with the 1.5-gbps SATA interface). Test units were not available at press time, but shipping versions should be ready in the second quarter of this year. Hitachi estimates that the five-platter 500GB drives will be able to store up to 56 hours of HDTV depending on compression rates.

The drive uses longitudinal recording, which writes data tracks in concentric circles using particles magnetized horizontally on the surface of the disk. Hard-drive vendors may be able to squeeze as much as 250GB per platter out of longitudinal recording (current drives fit from 100GB to 133GB on each platter). Desktop drive capacity will top out at around 1 terabyte by late 2006, before running into technological problems in maintaining data stability. To get beyond such limitations, drive makers are moving to perpendicular recording, which magnetizes the particles vertically. Such drives should appear in desktops sometime in 2007, predicts John Buttress, research manager for hard disks at research firm IDC. And you won't need a new motherboard or a new adapter card to use the drives.

Toshiba will begin mass-producing the first perpendicular recording drives later this year. They won't go in your desktop PC. The new technology is slated for the IPod-size, 1.8-inch hard drives instead.

The company plans to offer two perpendicular recording drives: a 40GB model only 5mm thick (current models are 8mm thick) and an 80GB unit that should be the largest-capacity 1.8-inch hard drive to date. By comparison, Toshiba's current largest 1.8-inch model holds 30GB of data.

ON THE HORIZON

INDUSTRY EXPERTS estimate that perpendicular recording won't run out of headroom until around 2010. By then even more advanced storage technology should be ready to take over, such as thermally assisted magnetic recording, which uses a laser to heat ultra-tiny particles so they can be manipulated to store data.

—Eric Dahl

HITACHI'S Deskstar 7K500 can pack a whopping 500GB of data on its five platters.

HOW IT WORKS

NEW DRIVE TECHNOLOGY

HARD DRIVE MAKERS, facing looming capacity limits with conventional, longitudinal recording technology, are turning to perpendicular recording to provide even greater storage.

Conventional (Longitudinal) Recording

Each bit of information is represented by a collection of magnetized particles, with their north and south poles oriented in one direction or the other. In longitudinal recording, the particles' north and south poles are lined up parallel to the disk's surface in a ring around its center. Magnetic repulsion limits how closely packed those bits can be and still maintain data integrity.

Perpendicular Recording

In this type of recording, the poles are arranged perpendicular to the disk's surface, which allows more bits to be packed onto a disk and reduces problems from magnetic interference.

PHOTOGRAPH: MARC SIMON

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HDTV

Even Higher-Definition TVs

NEW 1080P SETS PROMISE CRISPER IMAGES—EVENTUALLY.

THAT GREAT high-definition television set you just bought may no longer be the best on the block. While most high-definition sets sold today have native screen resolutions that support the 720p high-def screen format (720 lines of progressive-scan video), a new contingent of 40-inch and larger sets offer native support for the 1080p format. The effect of the higher resolution is debatable now, but these sets will eventually mean improved pictures.

Sharp already has 1080p sets in its popular Aquos lines of LCD TVs—but only in the newer 45-inch models. Samsung has promised to deliver a 56-inch 1080p version of its sleek pedestal-mounted DLP (Digital Light Processing) set this spring, followed in June by a 67-inch tabletop DLP set. And LG has announced both a 62-inch 1080p DLP set and a 55-inch 1080p LCD TV.

NEW HDTV MODELS FROM Sharp and other vendors promise crisper images, once 1080p content arrives.

CLARITY'S COST

NOT SURPRISINGLY, these high-res sets will command a premium price: Samsung's 56-inch 1080p DLP is expected to cost $5000, compared with the price of about $3000 for its 56-inch 720p version. But even budget vendors such as the Syntax Group will be selling 1080p products.

With progressive scanning, the set draws each of the 720 or 1080 lines in an image one after the other. By contrast, sets that use the interlaced method (signified with an "i" after the number of lines of resolution) scan every other line, so only half of the set's lines are "firing" at a given time. Interlacing allows for greater resolution at lower bandwidth, but it can produce flicker if you're watching sports or other content showing rapid movement.

Any set with native support for at least 720p is considered an HDTV. But will HD programs viewed on a 1080p set look better than they do on today's 720p models? The answer depends on the type of HD program. No HD shows are currently broadcast in 1080p; some are recorded in 720p, others in 1080i.

A 720p set de-interlaces the 1080i image and then scales down the 1080 horizontal lines to 720 lines; a 1080p set only has to do the first step, so it should produce a better-looking image. But 720p content is likely to look better on a natively 720p set than on a 1080p model that has to scale the image up.

Samsung and other vendors say that regardless of the content type, the higher screen resolution of 1080p sets will still produce images superior to those of lower-resolution HDTVs, especially on larger sets—in much the way that a blown-up image from a 6-megapixel camera looks better than a blown-up image from a 2-megapixel camera.

In a few years, the argument may become moot: Experts agree that 1080p content will look better on a 1080p set, and at some point Hollywood is expected to start delivering 1080p movies on high-definition discs. Also, new video compression technology could eventually allow 1080p broadcasts. So buying a 1080p set, if your budget permits, might prove a foresighted means of future-proofing. But for at least the next couple of years, having one will probably matter only to people who want state-of-the-art technology, regardless of the cost.

—*Yardena Arar*

IN BRIEF

Product Pipeline

PALM PHONES: PalmSource, which develops and licenses the Palm OS operating system, is launching two mobile phone platforms based on software from its new China MobileSoft subsidiary. The PalmSource Feature Phone will appear on budget cell phones, while the Linux-based PalmSource MFone will power upscale handsets. Both will look like today's Palm OS, but neither will run existing Palm OS apps. PalmSource says that the next version of its top-of-the-line Cobalt OS for PDAs and other devices will be Linux-based, as well, but will run most legacy apps in an emulation mode.

EPSON ALL-IN-ONE Epson's $299 Stylus Photo RX620 is an inkjet multifunction printer for both digital- and traditional-film buffs. The six-cartridge printer/scanner/copier can print photos from popular camera memory cards or from filmstrips or 35mm slides via the built-in 48-bit, 2400-by-4800-resolution scanner/film adapter. find.pcworld.com/47486

PHOTOGRAPH: MARC SIMON; ILLUSTRATION: GORDON STUDER

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INTERNET CONTENT

Podcasts Go Mainstream

SIMPLE WEB AUDIO BROADCASTING ADOPTED BY SOME MEDIA GIANTS.

LESS THAN ONE year old, podcasting—a method of distributing audio shows in much the same way sites send RSS feeds around the Internet—seems poised to go mainstream. Once the exclusive province of talkative technologists, do-it-yourself musicians, and obsessed hobbyists, this broadcasting platform has been embraced lately by some mainstream media.

National Public Radio, the British Broadcasting Corporation, and commercial stations such as Seattle's KOMO radio and TV operations make portions of their programming available via podcast.

A podcast is a Weblog that

delivers sound files instead of text directly to your computer. You subscribe to podcasts by using a free audio-friendly RSS aggregator application such as Doppler, IPodder, or Nimiq. Just as with RSS feeds for blogs, any podcast subscriptions you create will be updated automatically with the most recent podcast. Many of the aggregators will automatically put the podcasts on your IPod, as well, but you can also listen on your PC or manually put them on another portable audio player.

No matter how many media giants take up podcasting, though, it will likely remain a good tool for nearly anyone with a microphone, a PC, and some opinions. Tim Bourquin beams EnduranceRadio.com, a podcast on extreme sports, to an audience of 150 dedicated athletes. "Programming like mine simply doesn't work on traditional radio," he says.

—Tom Spring

ONLINE

PODCASTING RESOURCES

Aggregators

These programs collect podcasts you've subscribed to.

Doppler, www.dopplerradio.net

IPodder, www.ipodder.org

Nimiq, www.nimiq.nl

Directories

Find podcasts that interest you at these sites.

IPodderX.com

PodcastAlley.com

Tools

Audacity (audacity.sourceforge.net): Create podcasts with this open-source sound-recording program.

Liberated Syndication (www.libsyn.com): For $5 a month, this service will host and distribute podcasts.

COPY PROTECTION

Getting Around Copy Controls

BIG STORES SELL APPS WITH TIPS FOR COPYING PROTECTED DVDs.

DESPITE LAWS MAKING it illegal to circumvent antipiracy technology on DVD movies, programs with tools and instructions for doing just that remain widely available at major retailers such as Best Buy, CompUSA, and Target.

Out of the box, Bling Software's 123 Copy DVD and Me Too Software's ICopyDVDs2 Standard, each $30, don't allow you to duplicate copy-protected DVDs. But both products provide instructions on how to obtain free add-ons to bypass copy restrictions.

In 2004, a judge banned 321 Studios' DVD X Copy, which could create duplicates of commercial DVD movies, saying it violated the federal Digital Millennium Copyright Act's ban on information or tools to bypass copy-control technology (including the Contents Scramble System that is used in DVD media).

NON-U.S. ONLY?

WHEN YOU TRY to copy a protected DVD using ICopyDVDs2 or 123 Copy DVD, you get a message warning that doing so is illegal in the United States. But ICopyDVDs2 then explains how non-U.S. users can find and download an add-on for copying CSS-protected DVDs. Similarly, 123 Copy DVD offers a link to booyakasha.biz, a site where you can download a similar add-on. When we began researching this story, Internet domain registration records showed that booyakasha.biz was registered to Bling Software at an address in Gibraltar. (The registration info has since been made private.)

The makers of 123 Copy DVD did not respond to our e-mail queries. Me Too Software's Ron Wojcik says the product merely provides tips to international users, who are not bound by U.S. laws. Best Buy and CompUSA declined to comment, as did a spokesperson for the Motion Picture Association of America. For now, a loophole is open.

—Tom Spring

BLING SOFTWARE'S 123 Copy DVD gives tips for copying.

ILLUSTRATION: HARRY CAMPBELL; PHOTOGRAPH: MARC SIMON

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PLUGGED IN

STEVE FOX

Phone Viruses? Don't Worry Yet

PLUS: EXPRESSCARDS TAKE A BOW AND TABLETS TAKE A PRICE CUT.

WORMY CELL PHONES

The Buzz: When a Bluetooth-enabled cell phone in Santa Monica, California, was infected with the Cabir worm last February, headlines proclaimed the coming mobile Armageddon. Not so fast, advises McAfee's Victor Kouznetsov. "We're doing a disservice" by even calling Cabir an infection. Cabir is "a proof of concept—an application, not a worm"—that sends itself from a single phone to another phone. Once there, it does no harm, since it has no malicious payload. Symantec's Oliver Friedrichs cautions that as higher-end operating systems proliferate on smart phones, we'll see more viruses and Trojan horse programs masquerading as ring tones. But it "takes a lot of interaction for this kind of thing to spread." A user must be in range of the infected phone and must specifically accept a download via Bluetooth. To protect yourself, don't accept a download without validating its origin.

Bottom Line: To quote the noted hitchhiker Douglas Adams: "Don't panic."

EXPRESSCARD DEBUTS

The Buzz: The notebook PC Card is being shown the door. Replacing it: the ExpressCard, a hot-swappable, 3-inch-long sliver that's quite a bit smaller and many times faster. ExpressCards come in two sizes: EC34 is 1.34 inches wide, while EC54 is a bit over 2 inches wide. At press time, a slate of vendors was shipping two-slot notebooks (one slot for a PC Card and the other for either an EC54 or EC34). Expect soon to see ExpressCards for memory and Bluetooth (where the juiced-up speed won't matter), and for faster FireWire 800 ports, gigabit ethernet, and TV tuners (where it will).

Bottom Line: Smaller is always better. And much smaller is much better.

YEAR OF THE TABLET?

The Buzz: Long confined to niche markets, tablet PCs—full notebooks that are configured for pen input—may finally be ready for the mainstream, thanks to recent and upcoming price drops. "The focus is to drive the cost of tablets down to the notebook price point," explains Sumit Agnihotry of Acer. Indeed, convertibles like the Toshiba Satellite R15-S822, the Acer TravelMate C300, and the HP Compaq TC4200 are currently just $100 to $300 more than similarly equipped notebook PCs.

Bottom Line: Ever tried to open a 15-inch notebook on an airplane? Then you'll know what's so great about having a tablet to scribble on. ■

Contact PC World *Contributing Editor Steve Fox at steve_fox@pcworld.com. Visit find.pcworld.com/31643 to read additional* Plugged In *columns.*

SLICK TECH

Superpowered LEDs

CONVENTIONAL LEDs (LIGHT-EMITTING diodes), used primarily as on/off indicators, are dull. And then there are Luxeons—next-generation LEDs from San Jose-based Lumileds that take the "light-emitting" part of their name seriously. These low-heat, extremely bright components are already replacing old-school lighting in traffic lights, car signals, and even flashlights, but the real payoff will come with consumer electronics. Sony is readying the very pricey Qualia 005 LCD TV with LED backlighting, which provides a wider range of color than LCDs with standard fluorescent backlights. Mitsubishi's Luxeon-powered Pocket Projector ($699), which can fit in the palm of your hand, is due in July. And cellphone cameras with Luxeon flashes are reportedly on the way.

HERE\NOW

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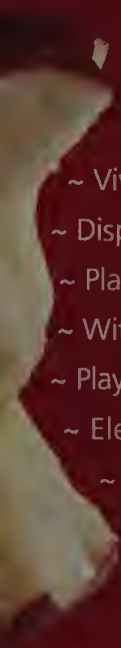
4 **YAHOO MAPS 'SEND TO PHONE'** Delivers driving direction links via SMS to any Web-enabled cell phone. maps.yahoo.com

5 **DELL ULTRASHARP 2405FPW** 24-inch, $1199 LCD. Now *that's* cheap. find.pcworld.com/47524

ILLUSTRATIONS: GORDON STUDER



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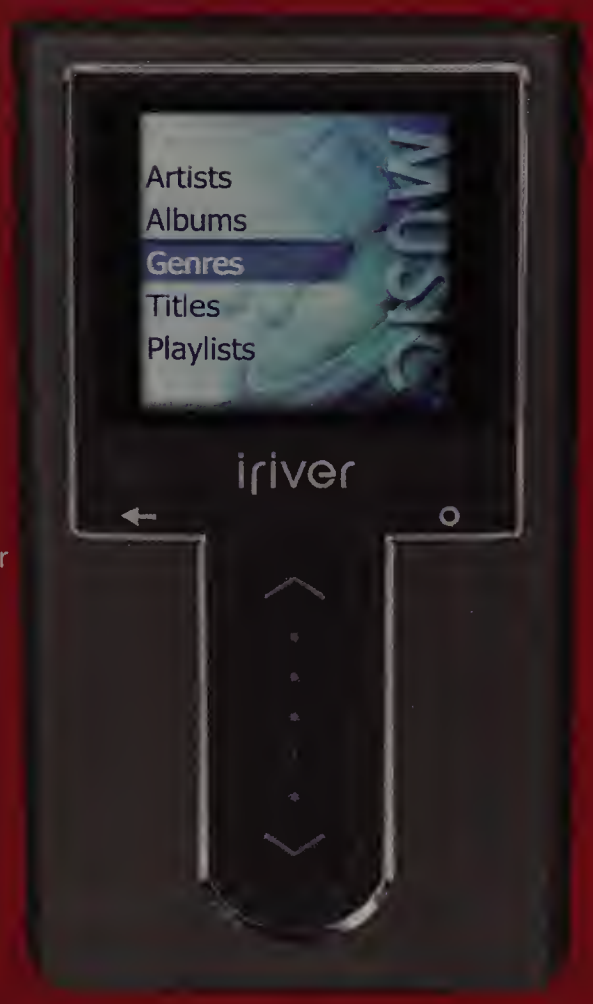

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LETTERS

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SAFETY TIP: TURN OFF E-MAIL HTML

VOLKSWAGEN PCs GET THE JOB DONE

'SMART' SOFTWARE ANNOYANCES

REJUVENATING WINDOWS

LINCOLN SPECTOR'S "Windows Rejuvenated!" [March] had a tone that I think permeates and aids in the continued dysfunction of Windows and other software.

Instead of worrying about real concerns like security, stability, and code integrity, we focus on adding fluff. Magical transparent application windows and over-engineered sidebar panels may be really cool, but I can get just as much done without them. The Inspector Gadget document searches could be replaced with organized folders and document names. The maintenance tips and performance tweaks are great, but let's take some responsibility for what we should be able to do ourselves and leave the techno-gizmos in our games—where they belong.

Jeff Blair, Chesapeake, Virginia

THE SECTION "Start Anew in Windows" suggests that readers reinstall the Windows OS about once a year to clean out the cobwebs and to be prepared to survive without a PC for a day or two—and not to do something dire like buying a Mac. Lose a day or two of productivity just to refresh a PC? What business world does your columnist live in? Just get over it and buy a Mac. Problem solved. After 25 years of PCs, my company did, and we will never, ever go back.

Douglas King
Mt. Horeb, Wisconsin

ONE THING Lincoln Spector should have mentioned: Once you are done with a cleanup or a reinstall, create an image of the finished hard drive (using Ghost or a similar utility) to preserve your work.

And if you back up the image on bootable DVDs, you could be up and running again 20 minutes after your hard drive dies (provided you have a new one and have been saving your documents to a different drive, like an external HD).

Beck Murzayev, Fairfield, Connecticut

PLAIN-TEXT PROTECTION

THE MARCH *Privacy Watch*, "Devious New Phishing Attack Outsmarts Typical Defenses," recommends using third-party tools to protect your PC's Hosts file from tampering by a Trojan horse in phishing e-mail. However, both Outlook and Outlook Express have settings that allow you to read all incoming mail in plain text. You can then click 'Display the HTML' if you recognize a trusted source. Besides protecting you from Trojan horses in HTML messages, these settings display the actual link text behind the supposed link in an HTML message.

This has saved me at least twice. Even as computer-savvy as I try to be (I teach people to use PCs), I would have unthinkingly clicked on them if I hadn't seen the real link displayed in this way. The fakes were very professionally done!

Rusty Ball, Kinnelon, New Jersey

Editor's response: For the steps to switch off HTML, go to find.pcworld.com/47470 (for Outlook Express) or find.pcworld.com/47472 (for Outlook). Note, however, that turning off HTML, while helpful, is no panacea against malware in e-mail. In any case, never click an e-mail link to log in; instead, go to the Web site independently. *—Andrew Brandt*

FOOLING ID SCANNERS

REGARDING STEVE BASS'S March *Home Office* column, "Stay Secure at Home and on the Road": Although fingerprint scanners are quite efficient, that doesn't mean they can't be bypassed. And they can give the user a false sense of security.

One of the oldest ways to defeat fingerprint scanners is to cup one's hands and blow into the unit. If you recently used your PC, the residue left from your finger can fog up and allow access. You could argue that malicious people probably aren't waiting for you to step away from your PC; but heck, if they really want your data, there is no telling how far they will go.

Kevin Steele, via the Internet

FANS DEFEND CHEAP PCs

I MUST OBJECT to your article "Cheap PCs: The Real Deals" [March], regarding what is described as "a radically cheap PC," the $200 Microtel PC SYSWM4005. The author states, "The hardware is simply too wimpy. In the end, it doesn't pay to go rock-bottom cheap."

This conclusion is an absurdity. My company buys the bare-bones boxes, never paying more than $199 per box ▶

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VISIT www.pcworld.com/pcwinput and rate this issue—you could win a $500 gift certificate from Amazon.com. You'll need to provide the subscriber number from your mailing label to take this survey online. The site explains the official rules and also describes how you can participate in the drawing if you're not a *PC World* subscriber.

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including freight. We drop in an extra 128MB of RAM and run the latest versions of AutoCAD, Excel, InDesign, Photoshop, Nero, Winword 2000, and so forth. Everything runs flawlessly on these machines, better than on the two-year-old Compaq and Dell PCs they replaced.

George G. Trask, via the Internet

YOUR REVIEWER GAVE short shrift to the Microtel/Xandros computer. After all, who in his right mind expects to do image processing on a $200 PC? Admittedly, the machine has quirks, but it is excellent for surfing the Web and for handling e-mail.

The PC is pretty cool for the price and an excellent choice for schools and groups trying to bridge the digital divide.

Edgar T. Lynk, via the Internet

STUPID SMART SOFTWARE

STEPHEN MANES's March *Full Disclosure* column on stupid "smart software" hit the nail on the head. We have new Windows XP systems but only a dial-up connection because no cable or DSL is on our block yet. Does my "smart software" understand this? Nooo. The first thing I had to do was to disable all of the automatic update functions—because seemingly the first thought on each program's mind was "gotta connect to the Internet."

Weeks and many tweaks later, I finally feel like I own my machine—except when my firewall asks me whether 'to allow this application to access the Internet now and any time it wants or block it permanently'. I want to say what my dad used to say to me: "Not now, I'm busy."

Don Hall, Cape Cod, Massachusetts

PC World *welcomes letters to the editor. We reserve the right to edit for length and clarity. Send e-mail to letters@pcworld.com.* ■

CORRECTIONS

IN APRIL'S "Spyware Stoppers," the McAfee product should have been referred to as McAfee AntiSpyware.

The April *Top 15 Desktop PCs* should have listed the hard-drive space for the Polywell Poly 939N-FX55 as 320GB.

PC World regrets the errors.

Sometimes, just sometimes,
you get it right the first time.

Here's to 20 years of making electric lift tables, modular workstations and, yes, the little gray cart.

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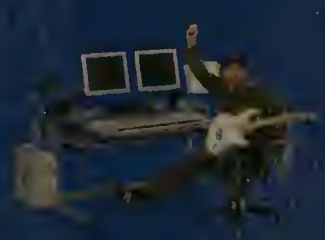

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ANNE KANDRA

WHY PC MANUFACTURERS SHOULD IMITATE APPLE

PRIVACY WATCH: HOW TO PROTECT YOUR FILES

ON YOUR SIDE: TOSHIBA LAPTOP SPEAKER SNAFU

What Can PC Makers Learn From Apple?

The PC industry would do well to take a few leaves out of Apple's book.

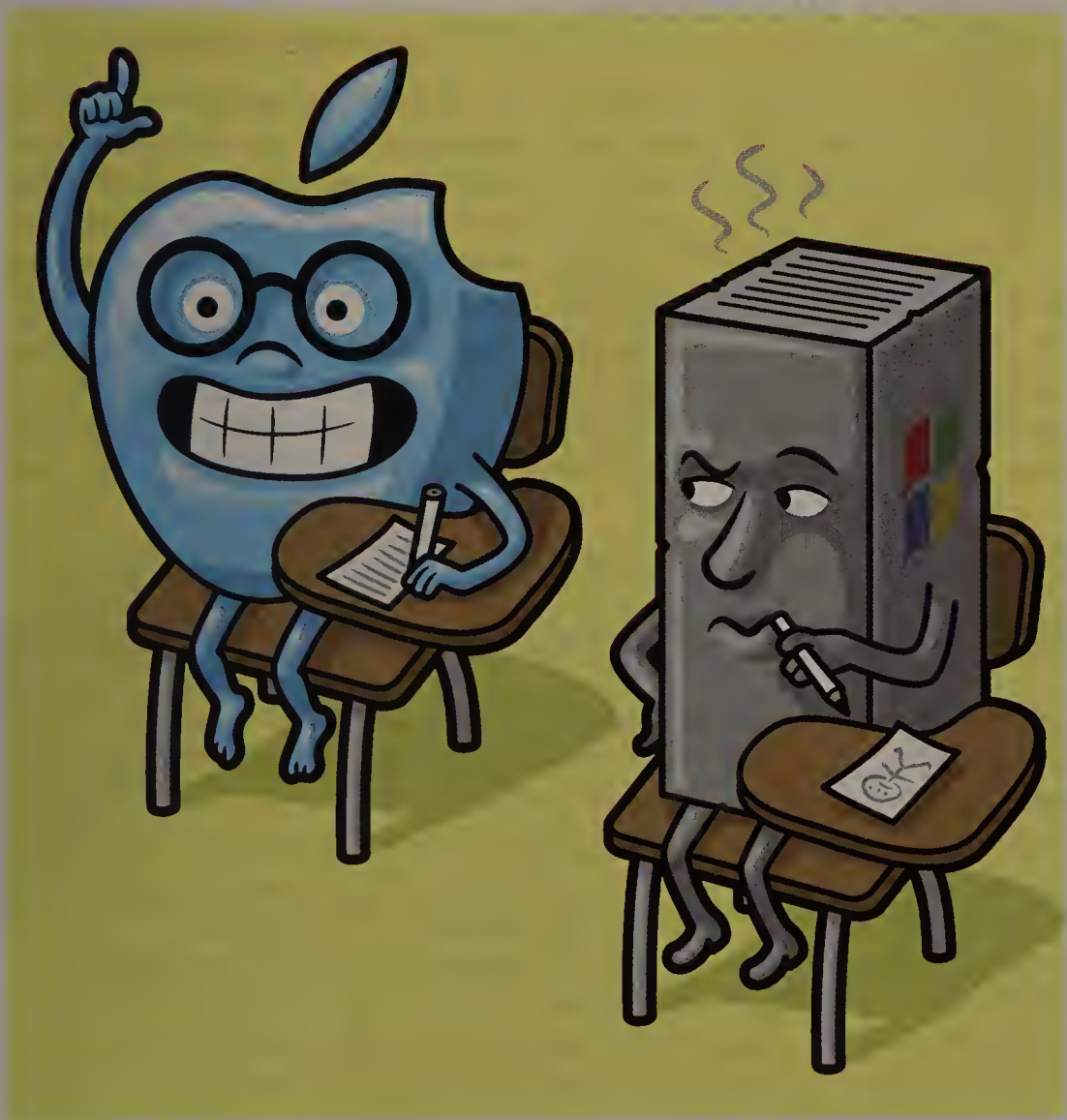

ILLUSTRATION: CHRISTOPH NEIMANN

THESE DAYS APPLE is generating more buzz than a swarm of African killer bees. Of course, we PC users can sit back and watch the hoopla about the Mac Mini and its brethren with detached interest, right?

Well, maybe we should pay more attention. The fact is, Apple gets a lot of things right. For starters, the new Mac Mini is a sleek, pared-down little number that has a trim $500 price tag to match. For Mac fans, it's an affordable, well-designed digital media machine that gets along nicely with other peripherals. The Mini will let you store and play music, manage photos, watch movies, and go online. Plus, it's relatively quiet compared with a typical PC, so it might be a good fit for your living room. Oh, and it's stylish, to boot. (Visit find.pcworld.com/46906 for *PC World's* hands-on evaluation of the Mac Mini.)

Now, I'm not saying that the PC universe is all bad. If you're a cost-conscious buyer, you may find that a PC is a better deal than a Mac. And if you're shopping for peripherals or internal components, you can choose from a huge range of PC brands. Plus, PCs are perfect for tinkerers; opening the hood is usually relatively straightforward. In Mac land, most systems' cases are harder to open, and components are designed more as cohesive units than as a collection of parts.

I'm not suggesting that you rush out and purchase a Mac. And I'm not talking about whether you should or shouldn't switch. Instead, I'd like to point out some of the things that Apple does extremely well. PC vendors, are you listening?

APPLE OF YOUR EYE

I KNOW, LOOKS don't make the computer. But on the other hand, where is it written that systems have to be boxy and boring? Or black and predictable?

To be fair, not all PCs fit that description these days. They're smaller and more streamlined than they used to be; they have snazzy flat-screen monitors; and thanks to Apple's rollout of candy-hued boxes a few years ago, some PCs even come dressed in hip new colors. But when it comes to design innovation in the computer industry, Apple still leads the way with its classy components and solid focus on simplicity and ease of use.

Granted, you might not care about details like translucent turquoise trim on the monitor and curvaceous cases when you are trying to pull together a last-minute sales presentation. But if you're looking for a system to power your home media center, which would you rather buy: a sleek device that you could design your living room around or a clunky box that's more about spreadsheets than Sade?

Speaking of nice-looking, Apple's operating system has raced past Windows ▶

in innovative design and functionality. The current OS X is both pleasing to the eye and intuitive. Plus, its integration of hardware and software is far more cohesive. (Visit find.pcworld.com/47080 for more about what makes OS X a winner.)

PLUG AND PLAY? NOT TODAY

WELL, OKAY. You have to give Microsoft some credit. The company's Windows XP Media Center operating system has made some strides in the past year, adding features like streaming live TV.

But all the media bells and whistles in the world amount to little more than a taunting reminder of What Could Be if you can't get your system hub to talk to the other members of your entertainment committee. And setting up a Windows-based home digital media system still seems to be about as simple as cobbling together a map of your own genetic code.

I'm not suggesting that Apple takes all the pain out of setting up a digital media system. But unlike Microsoft and all its hardware counterparts, Apple has a long history of making products that work right out of the box, mostly because it is the only company involved. In addition, Apple products typically work with a smaller group of peripherals and programs, so the company can quash more bugs and offer fixes in timelier fashion.

> Come on, PC vendors. It's time to take a hard look at Apple's successes.

LIVING THE ILIFE

HOW MANY MEDIA programs must we PC users arduously sort through before we can figure out which one will do the job easily? Let's see...this one has a great video editor, but it won't work with your DVD player. That one has a decent interface, but it crashes constantly. It's like trying to piece together a single recognizable image from ten different jigsaw puzzles.

Apple's ILife digital media suite minimizes hardware and software incompatibility problems and other headaches, and serves up a comprehensive package that permits you to do almost anything you want with music, photo, and video files, assuming that you have the necessary hardware and enough system memory. Oh, why can't a PC be more like a Mac?

SHOPPING SERENITY

IF YOU'VE EVER shopped for a PC in an electronics superstore, you know all about stress. The noise is head-pounding, the lighting is harsh, and you never know whether you'll find a salesperson who can answer your questions. (From my shopping experience, things can be especially bad on weekends.) And sometimes you can forget about actually trying out a PC. The ones that still work are often ▶

PRIVACY WATCH

Do Passwords Provide True Protection? Don't Count on It

YOUR PASSWORD-protected files may not be as private as you think. Getting around the password protection in such programs as Microsoft Office and Quicken is often as simple as point, click, and crack. Luckily, if you want to make certain that your files are really private, there are some apps that can give them Fort Knox-like protection.

The Web is rife with tools like ElcomSoft's Advanced Office Password Recovery Professional Edition ($199, www.elcomsoft.com), which can puzzle out the passwords used by Microsoft Office apps (versions 97 through XP), passwords for Microsoft Money 2002 through 2005, and a few other types. The program first tries to open the file using a list of typical passwords; failing that, it attempts to figure out the passwords through brute force, testing every possible combination of numbers, letters, and special characters until it finds the right one (see find.pcworld.com/47082 for a review, which focuses on AOPR's Microsoft Office version).

ElcomSoft's other password recovery tools (for other programs), range in price from $30 to $120. And a Web service called PasswordNow.com can hack passwords for Office files within 36 hours.

Of course, each of these companies aims its products at people who have forgotten their passwords. But the programs can also be of service to someone whose intentions aren't so benign.

Think your PC itself is protected because you use a log-in password? Think again. ERD Commander 2005 from Winternals Software ($149, www.winternals.com) can't figure out your log-in password, but it does permit an intruder to change the password to something else, effectively bypassing the protection.

You've probably been told that the Recycle Bin isn't a safe way to permanently delete files. Here's why: ERD Commander's File-Restore utility (among many others) can undelete documents.

Okay, so you can't trust your Windows or Office password to protect the privacy of your files, and you can't count on the Recycle Bin. But file encryption and file deletion tools can help.

One such product, Steganos's Security Suite 7 ($60, www.steganos.com), can protect files as well as delete them so that they're unrecoverable. File Shredder, another tool in the suite, permanently removes files by writing multiple sets of zeroes over the spots on the hard drive where the files were stored.

You can also find free tools that do many of the same things, but they involve a few trade-offs. Though PGP Freeware (find.pcworld.com/46902) can encrypt files and folders, it has a difficult learning curve; Eraser (find.pcworld.com/46904) can delete files or folders with one click, but it runs more slowly than Steganos's tool.

—Andrew Brandt

ILLUSTRATION: MARK MATCHO

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ON YOUR SIDE

Zap! Static Causes Toshiba Meltdown

I OWN A TOSHIBA Satellite A70 notebook, which houses its speakers under the area where my palms sit. Whenever my body is filled with static electricity and I touch the left speaker, the machine freezes or shuts down. Toshiba replaced the unit, but I have the same problem with the second A70. When I told tech support the specifics of the problem, they brushed me off and would not acknowledge the issue.

Peter Prage
Mississauga, Ontario, Canada

On Your Side responds: A Toshiba spokesperson confirmed that the speaker covers on some Satellite A70 and A75 units are not well grounded and cause the unit to lock up or reboot when touched. The company did repair Prager's second notebook free of charge. Toshiba has changed the speaker design on its newer models, and the owners of older A70s and A75s can arrange to have their units fixed for free. For more details, call 800/457-7777.

–Stephanie Layton

locked away, where you can gaze at them from a safe distance and read about them, perhaps on mismatched spec cards.

Now take that superstore experience and turn everything around: Think spacious, light, and inviting. Imagine computer stations where you can play freely with fully configured systems. Top it all off with helpful, knowledgeable salespeople who encourage you to try out the computers, and ask questions. (Yes, I'm talking about your typical Apple Store.)

Now, I'm sure that there are less-than-pristine Apple Stores somewhere, and no doubt some mediocre salespeople too. But the stores that I've visited have generally felt like places that I want to spend time in—enjoying the products and imagining how I might use them in my home. That sounds like good business to me.

There's no doubt that Apple has a lot going for it. From the company's product design to hardware and software compatibilities to the pleasant Apple Store environment, there's an awful lot to like.

So come on, PC vendors: It's time to take a hard look at Apple's successes. We could all use less stress in our world. ■

Anne Kandra is a contributing editor, Andrew Brandt is a senior associate editor, and Stephanie Layton is an editorial assistant for PC World. *You can send them e-mail at consumerwatch@pcworld.com. To read previously published* Consumer Watch, Privacy Watch, *or* On Your Side *columns, visit find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.*

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STEVE BASS

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ILLUSTRATION: HAL MAYFORTH

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The Annoyance: My superfast broadband connection sometimes stumbles, saddling me with poky downloads and anemic Web access. And when I'm stuck on dial-up, I could just scream.

The Fix: Milk every last drop of speed out of your cable, DSL, or dial-up connection.

• Goose Your Settings: One problem is that Windows Internet settings aren't optimized to establish the fastest connection possible—especially on dial-up. For more details, check out March's "Secret Tweaks" (find.pcworld.com/46914). Two products to try: CableNut, the one I use, is a free, geeky, not-so-easy-to-use tool that tweaks dozens of settings. A simpler program is ISpeed. The trial version is free, but you'll have to shell out $11 to keep it. **Tip:** In ISpeed, go to *Settings*, select your connection type, and let the program automatically modify the settings. Get both products at find.pcworld.com/46704.

• This Old Wire: When I had a DSL line installed in my home office, the installer initially used the existing wiring (DSL uses ordinary copper telephone wire). Big mistake. The old wire was exactly that—old—which meant that it was brittle and had small breaks, translating into bandwidth loss. By insisting on new wiring, I shaved slightly over a minute off the download time of a 20MB file. It's the same story for cable connections: New coaxial wire can make a significant difference in speed.

If you're on dial-up, buy a new cable for the stretch from the wall jack to your modem. Use the shortest cable possible—you lose bandwidth with long wires. Then make sure the wires within *all* wall jacks in your home are solidly connected, by unscrewing each faceplate and examining the wires. Just one loose connection can affect the others—and your dial-up modem's connection. And make sure you use the same trick mentioned earlier for broadband users: Ask the phone company for new copper wiring that goes from the street to your house. Finally, if things are still slow, check with your ISP for different access phone numbers.

• Split the Signal: If you use your cable connection to access the Internet and watch TV, be careful how you set up and use the signal splitter. Each split decreases signal power, so make sure that your first connection is to the cable modem; then split the signal to the TVs elsewhere in your home. Best bet? Have the cable company technician do the splitting for you.

SUPERSMART DOWNLOADS

The Annoyance: No matter how I connect to the Internet, downloading more than one file slows down my Web browsing. Worse, if I lose my dial-up connection, I have to start the download again.

The Fix: If you grab files even occasionally, you just *have* to use a free download manager. Even if your browser has one built in, consider auditioning a stand-alone version. The advantages are many: If the download is interrupted—due to network problems, a lost connection, or a browser crash—the download manager resumes where you left off. Whether on broadband or dial-up, you can watch a partially downloaded video to see if it's nearly as funny as you thought it would be. Most download managers let you quickly drag and drop download links onto a floating icon. You can start downloading the files when your workday is over and have the program shut down your system (or simply hang up the line if you're on dial-up) when it's finished. I use WellGet—it contains no adware or spyware, and it's free. Obtain it at find.pcworld.com/46644.

Not interested in a download manager? Bypass Internet Explorer's silly rule that limits you to three simultaneous downloads. Bump the number to ten with this tweak from Kelly's Korner (find.pcworld.com/46642; on line 55, on the right). ■

Contributing Editor Steve Bass is the author of PC Annoyances, *published by O'Reilly. Contact him at hasslefreepc@pcworld.com.*

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BUGS & FIXES

STUART J. JOHNSTON

Holes Abound in Microsoft Software

Prevent Xbox fires, patch Symantec software, and get Knowledge Base alerts.

PICTURE THIS: Your child, while surfing the Web, clicks a thumbnail picture to see a full-size version. But instead of showing the image, the PC just sits there. By the time you get summoned, the damage has been done. Your machine has been hacked, and an indeterminate number of confidential files are winging their way to an unknown location. This could happen to you if you don't plug a slew of recently discovered holes in Microsoft's software.

The company rolled out 13 patches recently. Five of them block serious security vulnerabilities in Windows, Office, Internet Explorer, Windows Media Player, and MSN Messenger.

Microsoft has labeled all five holes "critical." For example, one flaw could let an attacker send you a program disguised as a Portable Network Graphics (.png) image file. A successful attack would exploit the way your software displays such graphics files. The hole involves Windows Media Player 9, Windows Messenger 4.7 and 5, and MSN Messenger 6.1 and 6.2. All of the apps use the same software to process .png files. (You're safe if you work with an earlier version of WMP, or with either WMP 9 for Windows XP Service Pack 2 or WMP 10.)

You could get into trouble by clicking a link on a malicious Web site or in an HTML e-mail. Once infected, your PC would receive a poisoned PNG file from the attacker's program. Go to find.pcworld.com/47144 for Microsoft's fix. If you don't install the patch, you won't be allowed to log on to MSN Messenger.

Another patch corrects two critical weaknesses in IE. One hole would let a bad guy fool you into thinking you were clicking a safe link by camouflaging the link's real address (a process called "spoofing") and then take over your computer after you clicked it. The other hole takes advantage of the way IE handles dynamic HTML, an extension to the language that Web pages are written in. If you run Windows XP SP2, you are protected from the first flaw—but not from the second one. Both holes affect IE 5.01 through 6 SP1. Visit find.pcworld.com/47146 for the update. For details on all 13 patches, go to find.pcworld.com/47142 and click the security update links for Windows, Office, and MSN Messenger.

If you install the patches, beware: Some people have had troubles *after* installing them. Head to our blog at find.pcworld.com/47148 for users' experiences. ■

Stuart J. Johnston is a contributing editor for PC World. *Visit find.pcworld.com/31580 to see more* Bugs and Fixes *columns.*

KNOWLEDGE BASE REPORTS

HOW WOULD YOU like to be notified every time Microsoft publishes a new Knowledge Base article regarding the particular applications that concern you most? KbAlertz.com does just that. The site scans Microsoft's Knowledge Base daily for new or updated articles, and sends out an e-newsletter when anything changes. Sign up for free (at www.kbalertz.com) and specify the Microsoft products that you want to be kept apprised of—operating systems, Office applications, e-mail clients, and other software.

IN BRIEF

Xbox Fire Hazard

MICROSOFT is replacing the power cords on many of its Xbox game consoles due to a fire hazard. Failures in 30 consoles have resulted in minor burns to owners as well as minor property damage, the company reports. Visit www.xbox.com or call 866/271-0450 to see if your Xbox is affected and to obtain a free replacement cord.

Symantec Fix

SYMANTEC has patched a hole in various programs, including Norton AntiVirus 2004, Norton Internet Security 2004, and Norton SystemWorks 2004, that could let an attacker control your PC. Go to find.pcworld.com/47154 for details.

HP Monitor Recall

PHILIPS is now recalling HP-brand L2035 LCDs due to a possible shock risk. Philips will repair or replace defective units. For details go to find.pcworld.com/46672 or call 800/254-2280.

BUGGED?

FOUND A hardware or software bug? Tell us about it via e-mail at bugs@pcworld.com.

ILLUSTRATION: SCOTT MENCHIN

IBM recommends Microsoft® Windows® XP Professional.

GO with IBM Think Express Program

IBM rated #1 in tech support for desktops and notebooks by PC Magazine readers. PC Magazine 17th Annual Reader Satisfaction Survey – July 14, 2004

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Now you can have security at your fingertips. Literally. That's because select IBM ThinkPad notebooks, like the T42 detailed to the right, features Intel® Centrino™ Mobile Technology, so you can access your work wirelessly. And with our biometric Integrated Fingerprint Reader, access is easier than ever. Instead of entering tons of passwords, it all happens with just one swipe of your finger and one password. These innovations, combined with our security chip and software, provide a level of security that no one else offers as a standard feature. Giving you the most secure wireless PC available. Hands down.

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IBM ThinkPad T42
Thin and light

Distinctive Innovations
- Integrated Fingerprint Reader – Security at your fingertips.
- IBM Embedded Security Subsystem 2.0

System Features
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 14.1" XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- IBM Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 3-yr system /1-yr battery limited warranty[7]

Express Price **$1649** NavCode 2379R1U-M187

IBM ThinkPad X40
Our thinnest and lightest

Distinctive Innovations
- IBM Embedded Security Subsystem 2.0[1]
- IBM Rescue and Recovery™ – One-button recovery and restore solution.

System Features
- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor ULV 738 (1.40GHz)[2]
  - Intel® PRO Wireless Network Connection 802.11b/g[3]
- Microsoft® Windows® XP Professional[4]
- 12.1" XGA TFT display (1024x768)
- 256MB DDR SDRAM[5]
- 40GB hard drive[6]
- Integrated Gigabit Ethernet and modem
- Legendary IBM full-size keyboard[9]
- Up to 7.0-hr Li-Ion battery[11]
- 1-yr system/battery limited warranty[7]

Express Price **$1749** NavCode 2386E9U-M187

locations. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. Calls must be received by 5pm local time in order to qualify for Next Business Day service. **(9) Full-size keyboard**: As defined by ISO/IEC 15412. **(10) Wireless:** Public wireless access limited; subscription may be required and fees may apply. **(11) Battery**: These model numbers achieved the Ziff Davis Media, Inc.'s Business Winstone® 2002 BatteryMark Version 1.0, Battery Rundown Time of at least the time shown. This test was performed without independent verification by the VeriTest testing division of Lionbridge Technologies, Inc. ("VeriTest") or Ziff Davis Media, Inc.; neither Ziff Davis Media, Inc. nor VeriTest makes any representations or warranties as to these test results. Winstone is a registered trademark and BatteryMark is a trademark of Ziff Davis Publishing Holdings, Inc. in the U.S. and other countries. A description of the environment under which the test was performed is available at ibm.com/pc/ww/thinkpad/batterylife.html Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. **Trademarks**: The following are trademarks or registered trademarks of IBM Corporation: IBM, the IBM logo, Rapid Restore, Rescue and Recovery, ThinkPad, Ultrabay, UltraConnect and UltraNav. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, Intel Xeon, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Intel SpeedStep and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of other companies. ©2005 IBM Corporation. All rights reserved.
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To make IBM ThinkPad® notebooks even more valuable, each one featured here can give you the efficiency, productivity and edge you need and comes with all the following ThinkVantage™ Technologies:

IBM Active Protection System:
Butterfingers unite! Select IBM ThinkPad notebooks now include airbag-like technology to help protect your hard drive from some damage caused by drops and jolts.

IBM Rescue and Recovery:
Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

IBM Access Connections:
Switch between wired and wireless connections.

IBM Embedded Security Subsystem 2.0:[1]
Hackers and thieves, beware. Our combined hardware and software solution is designed to protect user data and keep it private.

Access IBM:
Get the help you need, when you need it. One button on your ThinkPad notebook brings you a world of resources and assistance.

IBM ThinkPad R51

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 15" XGA TFT display (1024x768)
- 256MB DDR SDRAM
- 30GB hard drive
- Integrated Ethernet and modem
- Ultrabay Enhanced CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 1-yr system/battery limited warranty[7]

Express **Price** **$1229** NavCode 2883GKU-M187

IBM ThinkPad T42

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 14.1" XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Ethernet and modem
- Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 1-yr system/battery limited warranty[7]

Express **Price** **$1449** NavCode 2378R4U-M187

Upgrade IBM **ServicePac® service upgrade**[8]
3-year depot repair #30L9192 $132.00

IBM ThinkPad T42

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 735 (1.70GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 15" XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 512MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 1-yr system/battery limited warranty[7]

Express **Price** **$1699** NavCode 2378FZU-M187

Upgrade IBM **ServicePac® service upgrade**
3-year depot repair #30L9192 $132.00

IBM ThinkPad R51

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)[2]
  - Intel® PRO Wireless Network Connection 802.11b/g[3]
- Microsoft® Windows® XP Professional[4]
- 14.1" XGA TFT display (1024x768)
- 256MB DDR SDRAM[5]
- 30GB hard drive[6]
- Integrated Ethernet and modem
- Ultrabay Enhanced CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 1-yr system/battery limited warranty[7]

Express **Price** **$1149*** NavCode 2883ELU-M187

IBM ThinkPad R51

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 725 (1.60GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 15" XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Ethernet and modem
- Ultrabay Enhanced CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 1-yr system/battery limited warranty[7]

Express **Price** **$1249** NavCode 1836Q4U-M187

IBM ThinkPad T42

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 735 (1.70GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 14.1" SXGA+ TFT display (1400x1050)
- 64MB ATI Mobility RADEON 9600 graphics
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Ultrabay Slim CD-RW/DVD-ROM combo
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IBM ThinkPad T42

System **Features**

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor 735 (1.70GHz)
  - Intel® PRO Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 15" SXGA+ TFT display (1400x1050)
- 64MB ATI Mobility RADEON 9600 graphics
- 512MB DDR SDRAM • 60GB hard drive
- Integrated Gigabit Ethernet and modem
- Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 3-yr system/1-yr battery limited warranty[7]

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IBM recommends Microsoft® Windows® XP Professional.

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Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

Access IBM:
Get the help you need, when you need it. One button on your ThinkCentre desktop brings you a world of IBM resources and assistance.

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IBM ThinkCentre A50 Ultra Small Form Factor

System **Features**
- Intel® Pentium® 4 Processor with HT Technology 3GHz
- Microsoft® Windows® XP Professional
- Intel® Extreme Graphics 2
- Ultra small form factor – 74% smaller than a standard IBM desktop
- 256MB DDR PC3200
- 40GB hard drive and CD-ROM
- Gigabit Ethernet Integrated
- Norton AntiVirus™ with 90 days of virus definition updates
- Lotus SmartSuite Millennium License
- 1-yr limited warranty with 1-yr limited onsite service[10]

Express **Price** **$659** NavCode 809021U-M187

Upgrade
IBM **ServicePac® service upgrade**
3-year Onsite/9x5/Next Business Day Response #54P1861 $132.00

(Monitor not included)

IBM ThinkCentre A51p Tower Form Factor

System **Features**
- Intel® Pentium® 4 Processor 530 with HT Technology
  - Processor speed 3GHz
  - 800MHz FSB
- Microsoft® Windows® XP Professional
- Intel® Graphics Media Accelerator 900
- 256MB DDR2 PC2-3200
- 40GB hard drive and CD-RW
- Gigabit Ethernet Integrated
- Norton AntiVirus™ with 90 days of virus definition updates
- IBM Embedded Security Subsystem 2.0
- 1-yr limited warranty with 1-yr limited onsite service[10]

Express **Price** **$799** NavCode 842721U-M187

Upgrade
IBM **ServicePac® service upgrade**
3-year Onsite/9x5/4-hr Response #54P1862 $239.00

IBM ThinkCentre A50 Tower Form Factor

System **Features**
- Intel® Pentium® 4 Processor with HT Technology 3GHz
- Microsoft® Windows® XP Professional
- Intel® Extreme Graphics 2
- 256MB[5] DDR PC3200
- 40GB hard drive and CD-ROM
- 6 USB 2.0 Ports (2 on front)
- IBM Preferred Pro Keyboard
- Integrated Sound MAX Cadenza audio solution
- Integrated 10/100 Ethernet
- Norton AntiVirus™ with 90 days of virus definition updates
- Lotus® SmartSuite® Millennium License
- 1-yr limited warranty with 1-yr limited onsite service[10]

Express **Price** **$639** NavCode 814821U-M187

IBM ThinkCentre A50 Tower Form Factor

System **Features**
- Intel® Pentium® 4 Processor with HT Technology 3GHz
- Microsoft® Windows® XP Professional
- Intel® Extreme Graphics 2
- 256MB DDR PC3200
- 40GB hard drive and CD-RW
- 6 USB 2.0 Ports (2 on front)
- Integrated Sound MAX Cadenza audio solution
- Integrated 10/100 Ethernet
- Norton AntiVirus™ with 90 days of virus definition updates
- Lotus® SmartSuite® Millennium License
- 1-yr limited warranty with 1-yr limited onsite service[10]

Express **Price** **$669** NavCode 814822U-M187

IBM ThinkCentre A50 Tower Form Factor

System **Features**
- Intel® Pentium® 4 Processor with HT Technology 3GHz
- Microsoft® Windows® XP Professional
- 64MB nVIDIA GeForce MX 440
- 512MB DDR PC3200
- 80GB hard drive • CD-RW/DVD-ROM
- 6 USB 2.0 Ports (2 on front)
- Integrated Sound MAX Cadenza audio solution
- Integrated 10/100 Ethernet
- Norton AntiVirus™ with 90 days of virus definition updates
- Lotus® SmartSuite® Millennium License
- 3-yr limited warranty with 3-yr limited onsite service[10]

Express **Price** **$969** NavCode 814723U-M187

intel inside centrino™ MOBILE TECHNOLOGY

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We've configured and priced many of our products specifically for small and medium businesses. And best of all, they're available direct from IBM or through select IBM Business Partners.

IBM ThinkPad Accessories

IBM M400 Projector – an extra-light, extra-small DLP microportable projector #0037AR1 **$1849**

Kensington MicroSaver Security Cable Lock from IBM #33L3262 **$39**

IBM Out-Pad Carrying Case – Expander #73P5597 **$59**

ThinkPad 12W AC DC Combo Adapter #22P9010 **$99**

Ethernet Port Replicator II #74P6633 **$149**

IBM ThinkCentre Accessories

IBM Multibay Internal Drive – One gigabyte of it a [illegible] about twice capacity Tri Ds and [illegible] CD [illegible] #74P3370 **$179**

IBM E74 17" (16" viewable) CRT Monitor #63324HN **$149**

IBM ThinkVision™ L170 17" Flat Panel Monitor #W9SPHB0 **$389**

IBM

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NEW PRODUCTS

EDITED BY TOM MAINELLI

Adobe's Creative Evolution

Creative Suite 2 offers numerous improvements, but some could use more time in the soup.

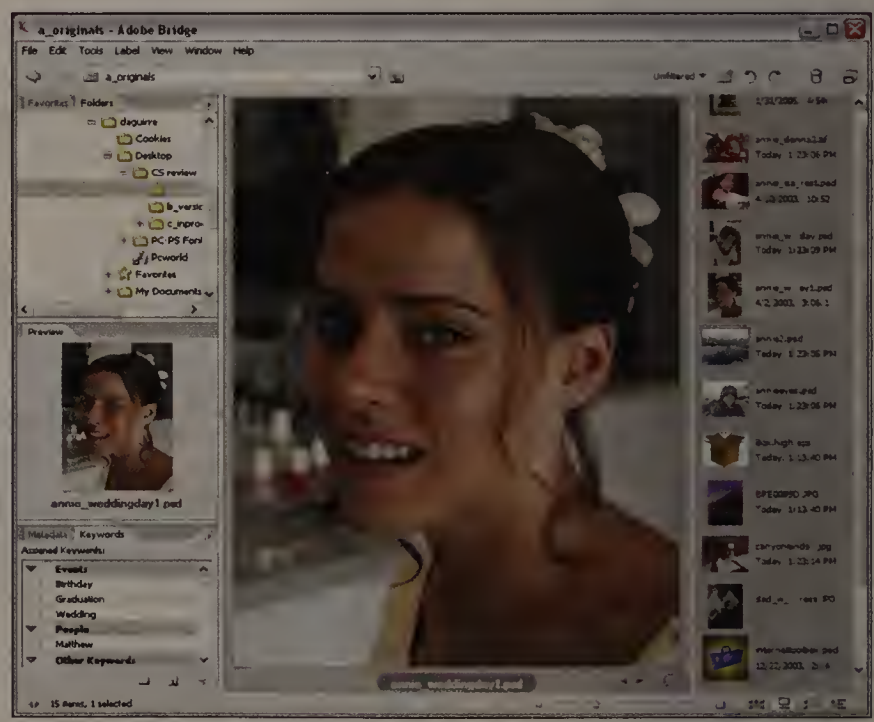
DESIGN

ADOBE'S NEW **Creative Suite 2** is a big, expensive collection of powerful—yet increasingly complicated—applications. The Standard edition ($899) offers Photoshop for image editing, Illustrator for drawing, and InDesign for desktop publishing; the Premium version ($1199) adds GoLive for Web authoring and Acrobat for PDFs; and in both versions a new Bridge asset manager ties everything together. Mastering just one of the applications in CS2 should qualify you for some sort of medal.

Creative Suite 2
Adobe Systems
(Preproduction version, not rated)
Adobe piles on the features, but some still need refinement.
List: $899 Standard, $1199 Premium
find.pcworld.com/47302

We tested a beta version of the entire $1199 CS2 suite, but it's much too large to cover in detail here, so we'll concentrate on the granddaddy of the mix: Photoshop. Our reviews of the other applications are online; see the box on the next page.

The latest edition of Photoshop adds some impressive features. Take, for example, its new Vanishing Point tool, which adds powerful perspective correction. To duplicate an object or add text, you draw a grid and then copy and paste from either a selection or another file onto your background image or a new layer. The tool adjusts the object's dimensions to match the perspective that the grid defines. It also draws on Photoshop's "healing" feature to adjust color and levels to make the object match its surroundings. Tip: If you want your results to appear on a new layer, you must create that layer and highlight it before you start up Vanishing Point.



ADOBE CREATIVE SUITE 2's new Bridge asset manager—a separate app—makes categorizing and browsing your numerous graphics files easy.

A new spot-healing brush acts much like the healing brush introduced in the previous version, but you don't have to <Alt>-click to set a reference point; instead, it analyzes the area around the tool as you use it. Occasionally, the new brush works magically well, but most times the results are less than compelling. The plain old healing brush (which is still available) gives you more control, and for us it performed the task far better most of the time.

SAY NO TO NOISE

EVEN THE BEST digital cameras can produce images with noise, or color artifacts, so photographers may consider the new Noise Reduction filter worth the cost of upgrading. However, the filter's controls

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are insufficiently labeled: For example, it has a 'Strength' adjuster and a 'Reduce color noise' adjuster, which ought to be the same thing. But it does a phenomenal job of reducing any artifacts in low-light shots. Likewise, the lens-correction filter is great for fixing barrel distortion.

TOO MANY TOOLS?

WHILE ADOBE has added tools, it could jettison some, as well. For example, the new Smart Sharpen is supposed to work even better than the Unsharp Mask that has become the default sharpening tool—and it does, by letting you control sharpening in shadows independently from sharpening in highlights. So why do we still need Unsharp Mask and three other sharpening items on the menu?

In this version it's easier to group layers in the layers palette and to apply multiple transformations within layers without linking them. You still can't change the layer blending mode of a group of layers, however. You can copy a layer style and apply it to other layers, but that style may include attributes you don't want in other layers.

Yet you can group elements into a "smart object" that you can save and then reuse in other graphics. All the instances of the smart object change when the original one changes, so you don't have to spend time re-creating multiple versions of the same object—for example, custom bullets or a logo. Vector graphics created in Illustrator are editable (to a point) in Photoshop, and edits in one app appear immediately in the other.

Another new tool lets you combine multiple bracketed images into a single 32-bit High Dynamic Range (HDR) composition to achieve perfect exposure in both shadows and highlights. It sounds fantastic, but in our lab tests the Photoshop beta took forever to process HDRs, and we got better (and quicker) results by setting up the shot as well as we could and then adjusting later with other tools.

Photoshop's file browser is now history, having been replaced by Bridge, a separate asset-management application that handles files among all the applications in the Creative Suite. It can quickly zoom thumbnails from tiny icons to large previews, and it will even display all the pages of a PDF. Longtime Photoshop users will likely have mixed feelings about Bridge: It's powerful, but it's also resource hungry—and it's one more application running in your system taskbar.

PASTE AN OBJECT such as text into the new Vanishing Point, and it corrects the perspective.

Bridge lets you browse and purchase stock photography online, as well. For the most part, finding and buying new images is easy, except that the tool lacks a needed "search within these results" feature.

Some of the added features in Photoshop CS2 seem a bit experimental, but we have seen other tools become indispensable as Adobe has refined them. They are certainly fun to play around with, and Adobe's Photoshop-only upgrade price is pretty friendly: $149 to upgrade to the Standard version from *any* previous version. The standalone version sells for $599; upgrading from Creative Suite to CS2 Premium costs $549. It's still pricey software, but this upgrade gives you plenty for your money, and lots to learn before the next update.

—Alan Stafford and Diego Aguirre

ONLINE

Go to PCWorld.com for More CS2 Reviews

ADOBE'S CREATIVE SUITE 2 brings together a handful of powerful programs into an increasingly cohesive package. For a closer look at CS2's other apps, visit PCWorld.com. You'll find Editor in Chief Harry McCracken's in-depth review of Illustrator CS2 at find.pcworld.com/47480. Senior Associate Editor Dennis O'Reilly reviews GoLive CS2 at find.pcworld.com/47481 and Adobe Acrobat 7 Pro at find.pcworld.com/47484, and freelancer Katy German dives into InDesign CS2 at find.pcworld.com/47482.

PHOTOGRAPH: MARC SIMON

Pricey Fujifilm S3 Pro Offers Fine Photos

DIGITAL CAMERA

THE **FinePix S3 Pro** is the latest in Fujifilm's line of digital SLR cameras. Only the most serious photographers will consider spending $2499 for just the body, but if you have an existing stash of Nikon-compatible accessories, it can make a good addition to your collection.

THE FINEPIX S3 PRO offers a 12.3-megapixel CCD sensor and Nikon compatibility.

At the heart of the S3 Pro is Fujifilm's new 12.3-megapixel Super CCD SR II sensor. It has equal numbers of small and large pixels, which the company says allows it to capture a wider dynamic range for better detail in shadows and highlights. Though our formal tests showed no dramatic improvements from the extended dynamic range, the S3 Pro proved a solid performer comparable to our current top-rated digital SLR, the 8.2-megapixel Canon EOS 20D.

It also performed quite well in our informal outdoor tests. In bright sunlight, with the camera cranked up to its widest dynamic settings, we saw consistently great results.

You can change the settings on the S3—including white balance, quality, and autofocus mode—using four function buttons on the back of the camera. This approach reduces the number of dedicated buttons and simplifies the setup menus viewable on the bright 2-inch color display.

The S3 Pro has an F-mount lens fitting for compatibility with Nikon lenses (our test unit came with a $400 24mm–135mm Tamron lens).

The unit outlasted our 500-shot battery test on a single charge of its four AA-size nickel metal hydride cells.

If you already shoot with your digital SLR heavily customized, the Fujifilm FinePix S3 Pro will not disappoint. However, you'll need a professional photographer's budget.

—Paul Jasper

FinePix S3 Pro
Fujifilm
★★★★☆
Produces top-notch photos and will appeal to photographers with a stash of Nikon lenses.
Street: $2499
find.pcworld.com/47270

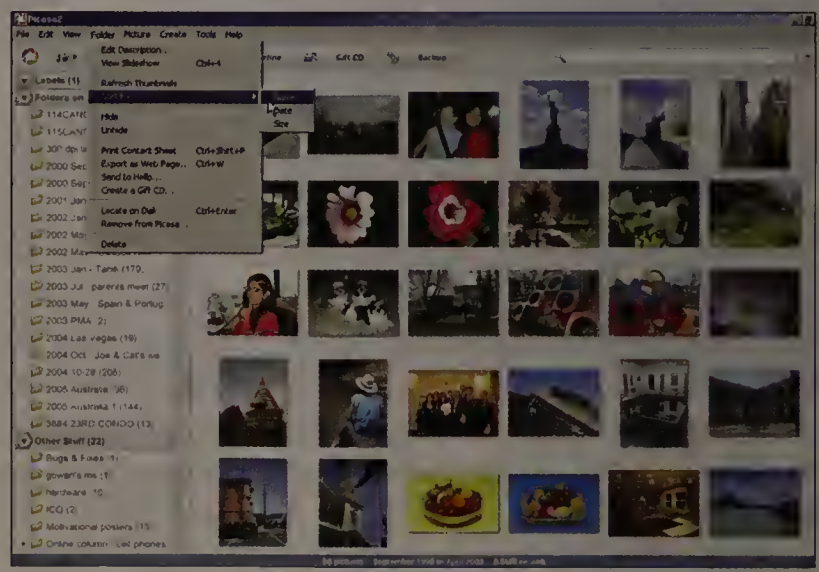
New Picasa Beats Original

IMAGE EDITING

GOOGLE'S **Picasa 2** photo application is fast, fun, and free. I tested a shipping version of the app and found that it builds upon the original's strengths (speedy image handling) and improves upon its weaknesses (photo editing capabilities). However, while some users will embrace the app's take-charge method of organization, others will likely chafe under its rules.

The first time you launch Picasa 2, it gives you the option to scan specific folders on your system (like My Documents or My Pictures) or your entire hard drive and connected drives for photos. The software goes on to sort what it finds, showing folders for images that reside in the same places on the disk (for example, your Desktop) and then listing them by creation date. You can also sort folders by name or by recent changes.

The sorting process sounds straightforward, and for newer digital camera owners with small image collections it should work well. However, as someone who has already done some organization of my own growing collection, I found the program's propensity to reshuffle my folder hierarchies a bit frustrating.



GOOGLE'S FREE Picasa 2 software offers numerous ways to sort your image collection, plus a handful of new image editing tools.

Though Picasa 2's organizational talents left me unsatisfied, its improved photo editing chops pleasantly surprised me. In addition to basic fixes such as straighten, crop, and red-eye removal, new easy-to-use tools let you fine-tune highlights, shadows, and color temperature, plus apply tints and effects such as soft focus.

Picasa 2 is a sensible tool for those new to digital imaging, as well as for slightly more experienced photographers looking to upgrade from their camera's included software. Its speedy interface is fun to use, and you just can't beat that wonderful price.

—Grace Aquino

Picasa 2
Google
★★★½☆
Speedy imaging program is easy to use, but some people may not like its organizing principles.
Street: Free
find.pcworld.com/47268

PHOTOGRAPH: MARC SIMON

THE LG FLATRON IS FLAT-OUT THIN.

WALL MOUNTED (front view)

SLIM SCREEN

INTEGRATED PORTS

90° TILT (auto image flip)

PORTRAIT

INTRODUCING THE NEW 80 SERIES LCD FLATRON™ MONITOR FROM LG; the slimmest flatscreen in its class. Its ∫·ENGINE™ technology features the first LCD picture-enhancing chip to provide not only astounding color, but superb contrast and image quality. With an 8 millisecond response time, the FLATRON 80 Series meets the visual quality demands of 3D gaming and high-speed graphics. To see all the LG LCD monitors in sizes ranging from 15"–30," visit LGusa.com.

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3 YEAR WARRANTY

FLATRON™ ∫·ENGINE

8ms Ultra Fast Response Time

BEST BUY

80 Series model shown

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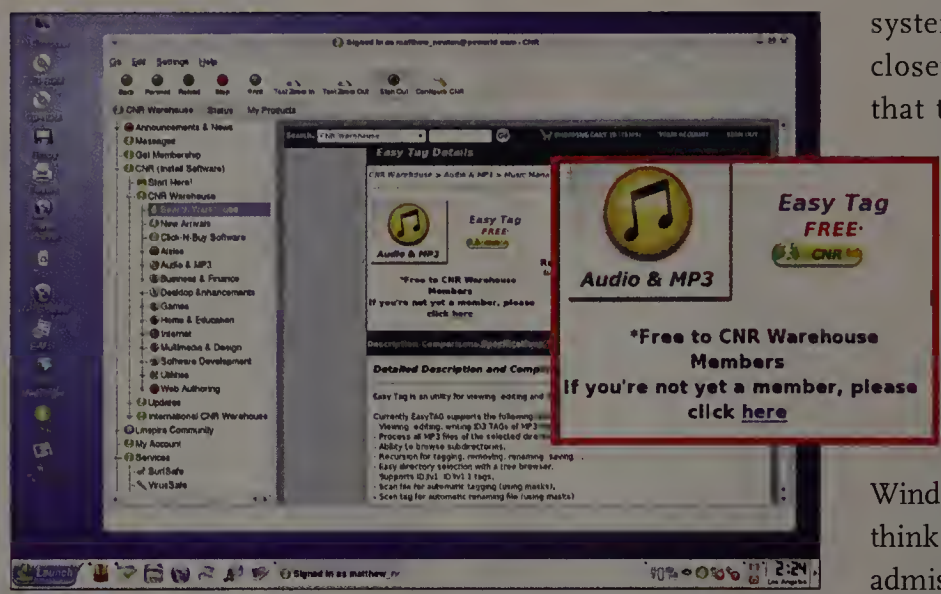
Linspire: Linux With Strings Attached

OPERATING SYSTEM

Linspire Five-0 is the latest edition of the Linux distribution once known as LindowsOS. Geared toward Windows refugees, it is available preinstalled on inexpensive machines from large retailers (including Wal-Mart) or as a stand-alone $60 package. I tested a beta version of the OS and soon realized why I'm glad competition exists in the Linux realm: If Linspire were my only option, I'd probably stick with Windows.

Things started off well: The installation took less than a dozen clicks and only 20 minutes. However, unlike most installers, Linspire's cannot shrink existing Windows partitions to make room on the drive for Linux, so I had to turn to a third-party partitioning tool to do the job. The installer asked me no questions about my hardware—a nice change of pace from most Linux installers.



THE LINSPIRE DESKTOP and CNR Warehouse, where you can quickly download free applications (if you've paid the subscription fee).

FAMILIAR DESKTOP

WHEN YOU LOG IN, Linspire presents an attractive desktop with icons, a start menu, a system tray, and a taskbar, all in the places a Windows user would expect to find them.

Linspire includes the OpenOffice.org productivity suite, plus Mozilla for Web browsing and e-mail. The much-lauded Gaim provides instant messaging on all the popular IM networks, but this customized version nags you to sign up for a free Voice-over-IP account at SIPphone.com, another company started by Linspire founder Michael Robertson. The nag note appears repeatedly until you finally relent and open an account with the service.

Linspire throws in a few other applications, as well. Lphoto is a picture manager patterned after Apple IPhoto. Lsongs is a music library program that plays your MP3s and Internet radio stations; the app integrates with the MP3tunes.com music store (another Robertson creation).

If you want to install more programs and you're not a Linux geek familiar with compiling from source code, you'll likely turn to CNR, Linspire's system for downloading and installing software. CNR stands for "Click-N-Run" but could just as easily stand for "Collect New Revenue." A subscription to CNR costs $50 per year for the privilege of downloading software—mostly Free Software. (Linspire is the only Linux distribution that charges for this sort of thing.) New Linspire buyers get a no-cost trial with CNR, but that lasts only 15 days.

And the selling doesn't stop there. An icon in the system tray activates a sales pitch for VirusSafe, a $40 add-on that purports to keep a Linspire system free of viruses. But closer examination reveals that the app only scans for Windows viruses that cannot infect the Linspire OS in the first place. A Linspire rep points out that VirusSafe can prevent you from forwarding viruses to your unwitting Windows-using friends. If you think that's worth the price of admission, feel free to pay up.

With version Five-0, Linspire has crafted a Linux operating system that just about anyone can use—but these days, such a thing really isn't all that unique. Unfortunately, Linspire Five-0 distinguishes itself only with its custom applications and its penchant for repeatedly clawing at your wallet. Better Linux alternatives are out there.

—*Matthew Newton*

Linspire Five-0
Linspire
★★½☆☆
A friendly Linux that keeps reaching for your wallet.
List: $50 electronic, $60 boxed, $50 per year for downloads and updates
find.pcworld.com/47262

QUICK TAKE

Linux As It Should Be

XANDROS IS THE king of user-friendly Linuxes, and version 3 proves this solid package is only getting better with age.

More than any other Linux distribution I've tried, Xandros just works. It talks to the Windows network in your home or office. It cooperates with USB devices such as portable music players, digital cameras, and keychain drives. It will play back your MP3 files and DVD movies without requiring any hacking on your part (unlike Fedora Core or Ubuntu Linux).

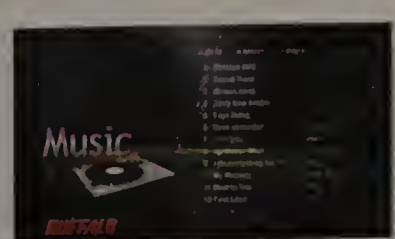
The $90 Deluxe Edition includes CrossOver Office (which lets you install and run Microsoft Office) and comes with a great 350-page manual. Plus, the Xandros Networks application provides access to the entire world of Free Software the way it was meant to be: without any fees. For my in-depth look at Xandros Desktop OS Deluxe Edition 3, visit find.pcworld.com/47224. —*M.N.*

MEN HAVE SIMPLE NEEDS.

Sports.

Beer.

High-definition wireless home theater integration.



Ahh. A ballgame and a cold one. Does it get any better? If you're a fan of home theater and the joys of networking, it actually does.

Check out LinkTheater™ —the MVP of home entertainment. Plug it in and your home theater and wireless network become one. LinkTheater delivers high-speed, high-definition, remote controllable access to your videos, photos, music, and DVDs.

LinkTheater, the high-definition wireless media player— with progressive scan DVD. Learn more at: www.pcworld.buffalotech.com

BUFFALO™

Go to find.pcworld.com/46802

M:robe Tries to Do Too Much

ENTERTAINMENT

COMBINE A SMALL hard drive, a good-size LCD, and a built-in digital camera, and you might have the ultimate portable multimedia box. Pint-size audio players and photo viewers abound, but Olympus's $500 **M:robe 500i** is the only player I've seen to add a digital camera to the mix. I have to give Olympus credit for a great concept, but I think it's a hat trick the company does not quite pull off.

I tested a shipping version of the (just) pocketable device, which plays WMA and MP3 music files, displays photos on its 3.7-inch color screen, and provides a built-in 1.2-megapixel camera.

As a music player, the 4.3-by-0.8-by-2.9-inch M:robe is a little bulky compared with the ubiquitous IPod. The audio quality was about par for small players I've tested, and the in-line remote is handy.

Digital photos I transferred to the M:robe looked pretty good on the device's 640-by-480-pixel screen, but shots I took with its camera were flat and darker than I like.

A NICE DISPLAY for viewing playlists and photos doesn't make up for the Olympus M:robe 500i's shortcomings.

Operating the M:robe is simple enough. You get an on/off switch, but you handle everything else by touching the screen and the fairly simple menu system. In use, however, a noticeable delay usually occurred as the M:robe accessed its hard drive and responded to a selection.

Battery life was good: I got about 2.5 hours playing both audio and slide shows, 8.5 hours playing audio alone.

A few extra features would make the next M:robe more attractive. I'd like to be able to connect my digital camera directly, and a media slot would be a nice addition.

—Tracey Capen

M:robe 500i
Olympus
★★½☆☆
Attractive music player/camera/photo viewer is a pricey work in progress.
Street: $500
find.pcworld.com/47216

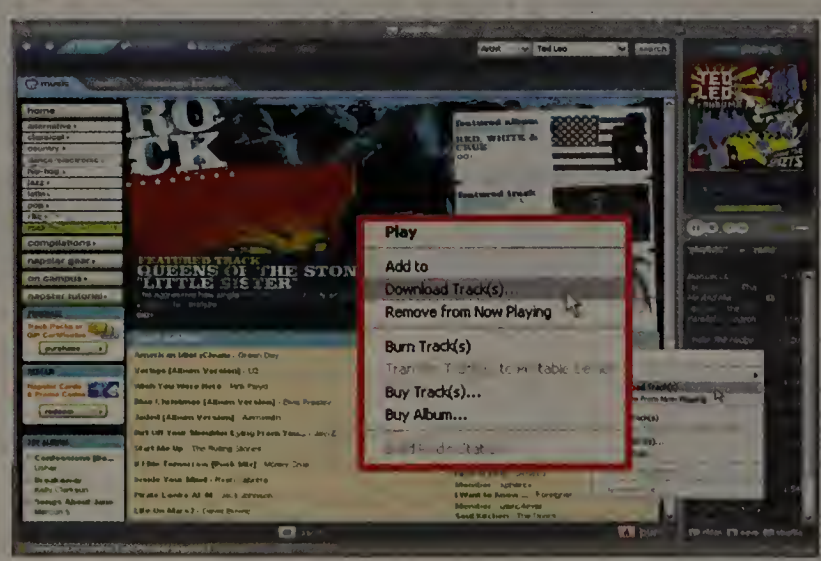
Napster Adds Mobile Music Subscriptions

PORTABLE AUDIO

FILL YOUR PORTABLE audio player with unlimited downloads for $15 per month: That's the promise behind the **Napster To Go** service. It's a great idea and a good way to try out new music, but the service's clumsy software interface, unexceptional sound quality, and (for now) limited choice in supported devices keep it from being a home run.

Napster To Go functions as either a stand-alone application (Napster version 3.0.3.4) or a plug-in to Windows Media Player; you have to download each separately. (Napster still offers its PC-only service for $10 per month.)

After logging on, you can download as many 128-kbps WMA music files as you want (higher bit-rate options would be good). The service's interface has improved slightly over that of previous versions, but its Windows Explorer–like two-pane arrangement can still be a chore to use.



NAPSTER TO GO lets you download music and transfer it to certain portable audio players, but the app's interface is still clumsy.

Most of Napster's million-plus tracks are available for download; in my tests I encountered only a few albums that I couldn't grab, presumably because of licensing issues. Using Windows Media DRM 10, Napster sets the license for each track you download to expire on the day when your subscription to the Napster service ends. Let your subscription lapse, and you lose access to those songs.

Unfortunately, at press time not many portable players supported the service, but that's changing as vendors roll out new units and update old ones. From Napster's list of ten supported players, I'd recommend only three: Creative's Zen Micro, Dell's Pocket DJ, and IRiver's H10.

Napster To Go is a good way to experience new music genres and to fill some gaps in your collection, but I wouldn't recommend it as an alternative to buying music.

—Eric Dahl

Napster To Go
Napster
★★★½☆
A great way to sample new music—if you have one of the supported portable players.
Street: $15 per month
find.pcworld.com/47218

PHOTOGRAPH: MARC SIMON

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SAVE EVERYTHING.™

Garmin PDA Includes Handy GPS Features

MOBILE

FREQUENT BUSINESS travelers tired of lugging around both a PDA and a pocket GPS system should check out Garmin's **IQue M5**, which combines both features in one package. Despite its high price ($750) and occasionally complicated software, I found much to like in this well-appointed device.

The M5 runs Windows Mobile 2003 Second Edition on sturdy hardware that includes an Intel 416-MHz PXA272 XScale processor; a sharp, 3.5-inch, 320-by-240-pixel transflective display; 64MB each of RAM and ROM; and a dedicated 48-MHz ARM7 coprocessor to handle GPS chores. The unit comes with a Bluetooth adapter for connecting to compatible phones, but Garmin leaves out a Wi-Fi adapter. A car adapter charger prevents you from running out of juice while driving.

You activate the unit's GPS features by popping up the antenna—a hinged square that's ordinarily flush with the back of the case. Satellite acquisition took a minute or two, as is the norm, and once connected the device maintained contact reasonably well in my informal tests.

Using the GPS in combination with the included MapSource software gives you access to a searchable database of lodgings, restaurants, and other useful locations such as ATMs.

The only downside to the M5's many capabilities: Some tasks and features—such as pinpointing specific coordinates on a map or figuring out how to bring up additional map detail—can be frustratingly difficult to master.

That said, for any Windows Mobile fans who'd like some navigation help without having to invest in a dedicated car system, the IQue M5 should make a good passenger.

—*Yardena Arar*

IQue M5
Garmin
★★★★☆
Combo PDA and GPS device is powerful, but mastering its numerous features isn't easy.
List: $750
find.pcworld.com/47114

GARMIN'S IQUE M5 combines Windows Mobile 2003 Second Edition with GPS capabilities to make one useful pocket PC.

Small Projector Aids Faster Getaways

PRESENTATIONS

A 3-POUND PROJECTOR is much easier to pack up and carry around than a heavier model, which makes it perfect for on-the-go presentations. Now, Plus Vision has introduced a portable projector that will get you back on the road even faster—and it's a fine performer, too.

The $1995 **V-332** is a compact 2.8-pound unit about the size of a thick paperback book. Like other projectors in its weight class, the V-332 uses Texas Instruments' Digital Light Processing technology.

What makes this projector unique, however, is its Unplug & Go function: The V-332 has a self-powered fan that continues to cool down the lamp after you unplug the unit. So instead of waiting for the projector to cool completely, you can begin packing.

I tested a shipping version of the V-332, and its Unplug & Go function worked well. According to the instructions, you need to wait until the fan stops before stowing the projector in a briefcase or bag, but in my tests that took less than a minute, after I had used the projector for over an hour.

Even without Unplug & Go, the V-332 has plenty to offer. Using its manual zoom lens, I could project fairly large images at short distances, such as a 5-foot-diagonal image at a distance of just under 8 feet. I also found the device's brightness rating of 1200 ANSI lumens (an industry-standard measure) sufficient for use in small conference rooms with moderate ambient light. Most important, the V-332 did a good job of projecting bright and crisp images from a laptop PC and other sources such as a DVD player.

The V-332 is a nice choice for busy presenters who want a proficient projector that looks good, is easy to use, and is quick to pack up.

—*Richard Jantz*

V-332
Plus Vision
★★★★☆
Ultraportable projector is a breeze to use and carry.
Street: $1995
find.pcworld.com/47220

PLUS VISION'S SMALL AND LIGHT V-332 projector offers top-notch performance and includes a self-powered fan for cooling.

PHOTOGRAPHS: MARC SIMON

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Go to find.pcworld.com/46793

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Epson Makes Small Pics Big

SCANNER

PRODUCING BIG photo prints from small pictures used to mean a trip to the photo lab, but now Epson claims you can do it at home with its new **Perfection 4990 Photo** scanner. I tested a shipping version of the $449 scanner and found the results quite remarkable.

The 4990 is a 48-bit color flatbed model capable of scanning both film and reflective prints at a maximum optical resolution of 4800 dpi. I used it to digitize 35mm slides and other small images, and I then output those digital images on a preproduction version of Epson's large-format Stylus Photo R1800 printer ($549 street; see the review at find.pcworld.com/47214).

In combination with the Epson printer, the 4990's results were hugely impressive. The excellent color quality, realistic contrast, and crisp details in some prints made them good enough to hang. On-screen image quality was excellent, too, offering color accuracy and fine details on a par with the output of the best competing scanners.

Of course, it takes more than high resolution to create good-looking enlargements. You also need clean and colorful images to scan, especially since small imperfections (like dust and scratches) become much more noticeable in huge blowups. Fortunately, the 4990 has such image-enhancement features as color restoration, grain reduction, dust removal, and Digital ICE (for removing scratches and other surface defects). Epson also includes Adobe's Photoshop Elements 2 image editing software.

When I tested the scanner via its USB 2.0 interface, it scanned a 35mm slide at 4800 dpi in just over 2 minutes, matching the performance of the best models in its class. It was also proficient at scanning text documents, creating PDF files, and performing other common tasks.

The 4990's ability to produce high-quality enlargements makes it a good choice for photographers and other users who want to generate big prints from old pictures.

—Richard Jantz

EPSON'S PERFECTION 4990 offers top-notch photo scanning tools.

Perfection 4990 Photo
Epson America
★★★★☆
Fast but pricey scanner includes powerful image-enhancement tools and offers high-quality photo enlargements.
Street: $449
find.pcworld.com/47212

IWork Offers Savvy New Word Processor

PRODUCTIVITY SUITE

APPLE REENTERS THE productivity application arena with the $79 **IWork '05** package, which includes an update of its Keynote presentation app plus a revolutionary new word processor called Pages.

Keynote 2 has its strengths, but the real news is Pages. The program makes it easy for nondesigners to produce attractive, complex documents, because the design is already in place—all you have to do is put in your text and images.

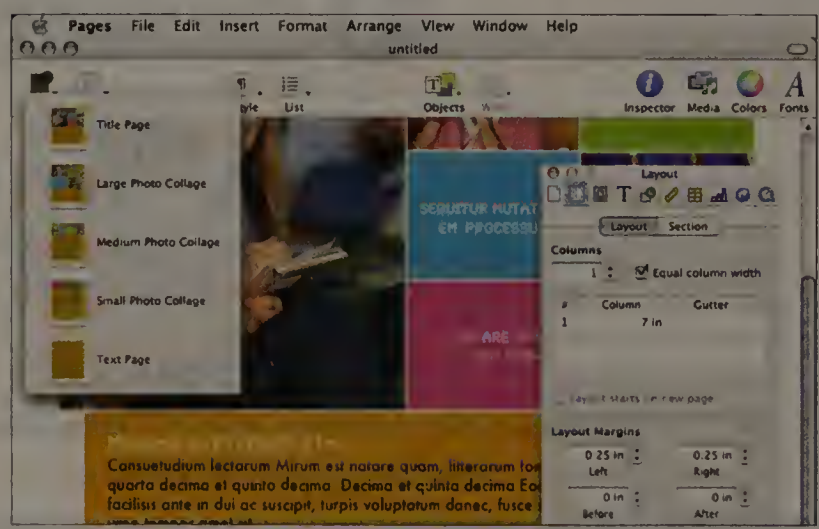
Pages' graphics-rich templates have a definite home/small-business bent; they include invitations, family newsletters, marketing brochures, résumés, and menus. Templates for purchase orders, invoices, and business cards would be nice additions.

You can modify all objects in a Pages document, and the tool palettes are easy to work with. The tool kit has a few gaps—for example, it's possible (but tricky) to reorder or delete pages—and you'll have to consult the user guide before handling some tools. But overall the application is very usable and represents a radical rethinking of what a word processing program can do.

Unfortunately, Keynote 2's interface isn't quite as simple. Apple has made improvements, but the ease of use just doesn't compare to Pages'.

Though Pages and Keynote 2 make a slick duo, the IWork bundle needs a spreadsheet app. Still, Apple users who want an inexpensive package to handle basic word processing, design, and presentations should be pleased.

—Rebecca Freed



IWORK '05 replaces Apple's old AppleWorks suite and introduces a clever, easy-to-use word processing program called Pages.

IWork '05
Apple
★★★★☆
Makes designing documents and presentations easy, but could use a spreadsheet program.
List: $79
find.pcworld.com/47222

PHOTOGRAPH: MARC SIMON

U.S. SMOKELESS TOBACCO CO. REMINDS YOU
NOT FOR SALE TO MINORS

Enjoy tobacco inside the office? You bet.

Enjoy tobacco the smoke-free way with Copenhagen® or Skoal.® Copenhagen offers legendary natural tobacco flavor, while Skoal comes in a variety of great tasting flavors that are sure to satisfy. They also make it easy to enjoy tobacco on your own terms. Try a rich satisfying pinch of long cut, or easy-to-use pouches. So maybe it's time to find your solution – and leave the smoke behind.

Break from the pack.™

WARNING
THIS PRODUCT MAY CAUSE GUM DISEASE AND TOOTH LOSS

Visit TrySmokeless.com for more info and savings.

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U.S. Smokeless TOBACCO CO.

Small Businesses, Big Challenges

Why go it alone when there is so much help available?

>> For many small businesses and independent "bosses" operating out of their small office/home office or SOHO, the business world can feel like a lonely place at times. Particularly for those people who formerly worked at large companies with extensive support staffs, going it alone can be daunting because often the sense is that they've got to do everything themselves.

"That's just not true," notes Joseph Pereira, a Houston-based retired auto industry executive who today consults with small businesses. "There is a wealth of resources, some of them free and many others at very low cost, that small businesses can tap. It's just a matter of taking some time to see what's out there. The more you look, the more you will find because you'll be building a network of help as you go."

SPONSORED BY:
Polaroid2go
Go to find.pcworld.com/46787

Polaroid's new, exciting solution

To prosper, a small business must maintain a laser-like focus on its main mission. For most small businesses, this means not spending lots of valuable time shopping for the best and most appropriate imaging solutions.

Therein lies a challenge for small businesses. They know that today's imaging products and technologies can be significant contributors to productivity and overall competitiveness. But the sheer number of digital imaging products has exploded in recent years while prices have steadily declined, boosting their attraction. Further, the number of places to buy these products has similarly shot up. It's almost too much of a good thing because small businesses don't have the time or expertise to figure out what imaging products to buy, or where to buy them.

What's needed is trustworthy help in sorting through the huge number of imaging products and technologies, as well as a convenient way of buying these products at competitive prices.

The good news is that Polaroid, one of the most respected photographic names worldwide and a company with more than 50 years of imaging expertise, has introduced an exciting solution to help businesses navigate the ever-changing imaging landscape. Called Polaroid2go, this solution provides one place to fill imaging needs while leveraging Polaroid's extensive experience as the company expands its offerings to include digital solutions.

For starters, Polaroid2go not only carries Polaroid's own exceptional imaging products, but also an expansive line of handpicked, top-of-the-line products from other leading manufacturers. What's more, small business customers can get access to dedicated account executives with comprehensive

Continued on page 3

Instant digital.

polaroid 2 go™

Introducing Polaroid2go.com

A fast, new way to get the brands you want and the photo imaging solutions you need.

For over 50 years, Polaroid has been dedicated to providing businesses like yours with the most innovative photo imaging technology. That's why we created Polaroid2go—the online photo imaging store designed to keep your business on the leading edge. With thousands of handpicked products from your favorite brands, it's everything you'd expect from Polaroid, plus so much more:

- Leading brands—choose from Polaroid, Canon, Sony, HP, Epson and more
- Thousands of products—compare digital cameras, printers and monitors
- Personalized service—talk to a dedicated account executive
- Preferred pricing—ask about our business partner benefits*

Call 1-800-630-2611 to speak to an account executive and get 10% off your first order of $350 or more.**

Polaroid® Now.

Visit **www.polaroid2go.com/welcome** or call **1-800-630-2611** today and see why Polaroid2go is the best choice for your business.

* Certain eligibility requirements apply. Call 1-800-630-2611 for details.
** LIMITED-TIME OFFER. Offer valid until 7/15/05. Valid on first purchase of $350 or more. Offer only available by speaking with an account executive at 1-800-630-2611.

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Go to find.pcworld.com/46787

Continued from page 1
imaging knowledge to help create a unique, customized solution for each business they serve.

■ *Get to know how Polaroid2go can help harness the expanding world of imaging technology to grow your business. Visit www.polaroid2go.com/welcome.*

Tap in and grow

As Pereira points out, the number of small businesses and SOHO operations has grown dramatically in the last five years. Thus, he advises tapping into the networks of similar businesses in your area, for a wide variety of reasons.

"One of my clients saved $200 per month on his health insurance payments just by hooking into a local business group in his community," he recalls. "The ability to join a group and get such a reduction was just one of the benefits to be gained. He also found a more reliable, cheaper Internet provider by asking around the group, and even took advantage of a group discount enjoyed at a local office supplies dealer."

What kinds of local groups are worthy of consideration? Local business associations abound in most every community, particularly smaller cities and towns. Dues are generally minimal, and regular, often monthly, meetings are superb venues for airing small business challenges and listening to a variety of approaches to addressing them. Just check the local phone directory.

There are also the national business organizations, such as Rotary International (www.rotary.org). Designed as an organization of business and professional leaders that provides humanitarian services, the Rotary's regular meetings put members in direct contact with all the various business service providers in their area.

And the federal government's Small Business Administration or SBA (www.sba.gov) is a national organization with a high degree of local presence in regional offices. However, it is an oftentimes overlooked source of excellent information on starting a business while avoiding common mistakes. The SBA also offers resources for securing financing and identifying real business opportunities locally, as well as information on business laws and regulations, and other important data—all free.

There are scores of businesses similar in size and scope to yours with managers eager to share how they are dealing with the realities of today's business world. You just have to get out and network.

The Post Office **Made Easy**

» Remember the promise of "a chicken in every pot and a car in every garage" associated with Herbert Hoover's presidential campaign? So what about "a Post Office in your home or business"? Done!

Using nothing more sophisticated than an Internet-enabled computer in any home or business, users can hook directly into today's cyber Post Office™ for just about all Postal needs—paying for postage, printing labels, insuring packages, confirming deliveries, arranging for a carrier to pick up your packages, and much more.

With a few simple clicks on the Click-N-Ship® section of the USPS® home page, you can quickly and effortlessly print shipping labels with nothing more than a standard inkjet or laser printer. You can use self-adhesive labels, or just print right on plain paper.

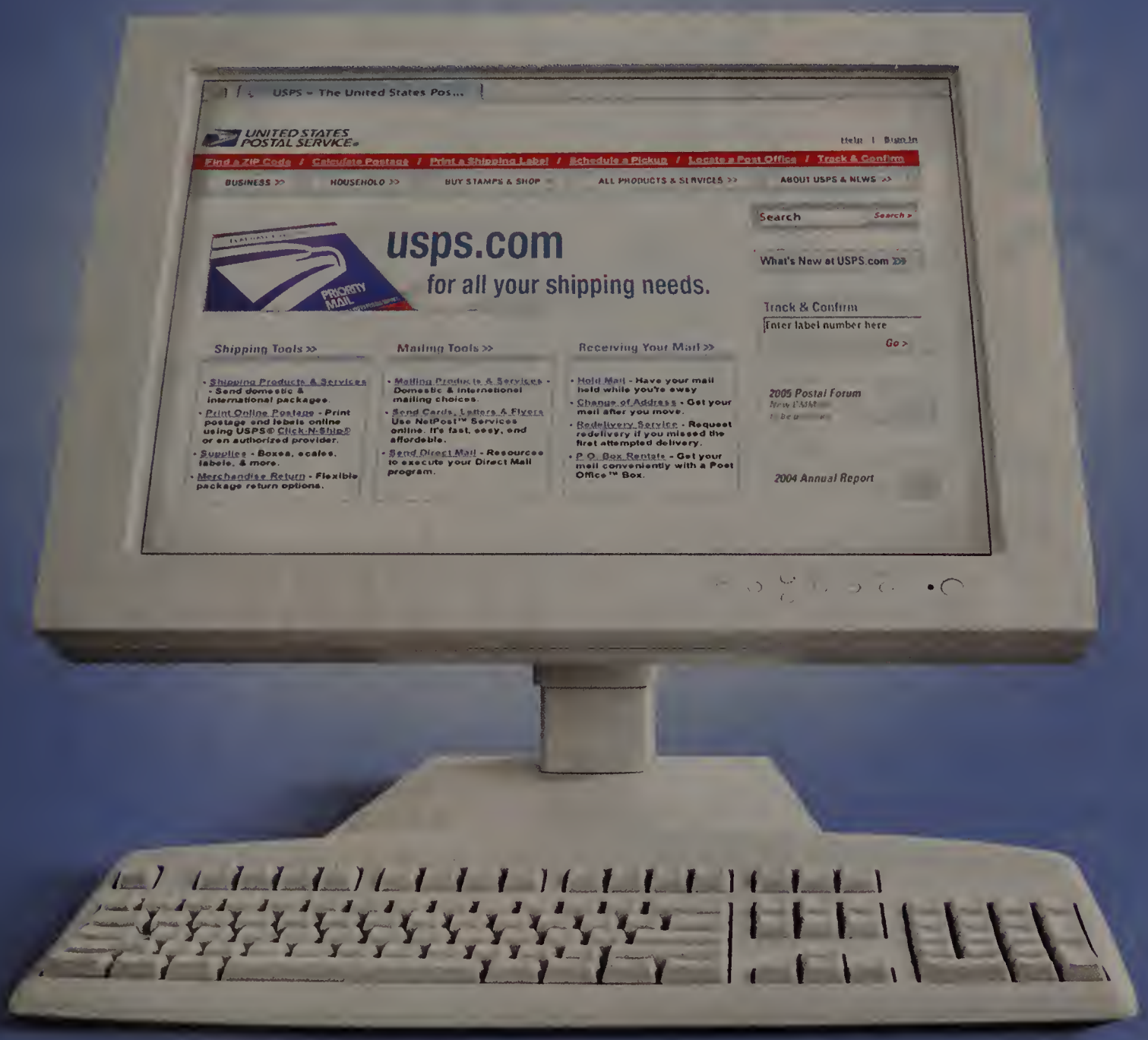
No stamps? No problem. With Click-N-Ship online service, you can also buy postage online with your credit card, directly from the Web site. And Postal Insurance can now be purchased online as well—up to $200 worth. Furthermore, a barcode reflecting the purchase of insurance will print directly onto the electronic shipping label generated by the Click-N-Ship service when postage is bought online, so that additional labels, forms, or stickers are not required.

SPONSORED BY:
USPS
www.usps.com

And with one click, you can not only notify the Post Office to direct your letter carrier to pick up your packages during the carrier's regular route, you can also leave special instructions, including the exact location where you want to leave the packages. Carrier Pickup is absolutely free, regardless of the number of packages you have. In case you need your packages picked up immediately, the USPS offers Pickup On Demand for a reasonable flat fee covering up to 70 pounds per package.

■ *Visit the local Post Office in your home or office today by clicking on usps.com.*

MORE THAN JUST A PRETTY INTERFACE.



Sure our new Web site looks great. But, in this case, beauty is more than skin-deep. That's because the new usps.com is filled with easy-to-use tools to help you take care of just about all your shipping needs. You can pay postage, print labels, add Insurance and order a next-day Carrier Pickup at no charge. Use Priority Mail® service and you also get Delivery Confirmation™ for free. The simple yet powerful usps.com – it's how the U.S. Postal Service® is working for you.

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SUPER-CHARGE Your Software

Ever wish your favorite program could do a little more? These **50 add-ons** enhance Windows, Office, browsers, e-mail clients, and other packages with powerful new features.

68 **Windows Wonders**
BY STEVE BASS

70 **Internet Winners**
BY SCOTT SPANBAUER

72 **Office Assistants**
BY RICK SCOTT

76 **Media Stars**
BY LINCOLN SPECTOR

ISN'T IT ABOUT TIME you got some relief from all those maddening things about Windows and the programs you use? Hunting for files and folders takes too much effort, your program windows are the wrong size, your bookmarks are scattered across three browsers, and that Word file with the weird formatting refuses to print correctly.

Our experts unearthed 50 gems to give you new features that you wish your software already had. We also show you how to do a bit of simple programming to apply your own custom formatting with a single click in Microsoft Word. So go to find.pcworld.com/47266 for links to our collection of the programs included in this story—and start downloading. Your computing life will never be the same. ▶

ILLUSTRATIONS BY MARK MATCHO

Windows Wonders

BY STEVE BASS

Folder Views Extraordinaire

ALL VERSIONS: Sometimes you need a quick look at a folder but you don't want to deal with Windows Explorer. **Folder View** resides in your system tray, giving you superfast access to the folders you use most often. The tool is easily configurable, so you can remove unneeded folders and add new ones. Plus, if you are using Windows Explorer, you can right-click a file to copy or move it to a favorite folder. Free, find.pcworld.com/46982

Drive Folders in a Snap

ALL VERSIONS: The folders I want are often deep in a sub-sub-subfolder. To get to those locations instantly in Windows XP and 2000, I use Walker Brothers' free **MountVD**, which assigns a drive letter to the folder in a couple of seconds. To remap your network drives in all Windows versions, try Novatix's **ExplorerPlus**. MountVD, free, find.pcworld.com/47008; ExplorerPlus, $40 (free 30-day trial), find.pcworld.com/47006

Snazzy Folder Icons

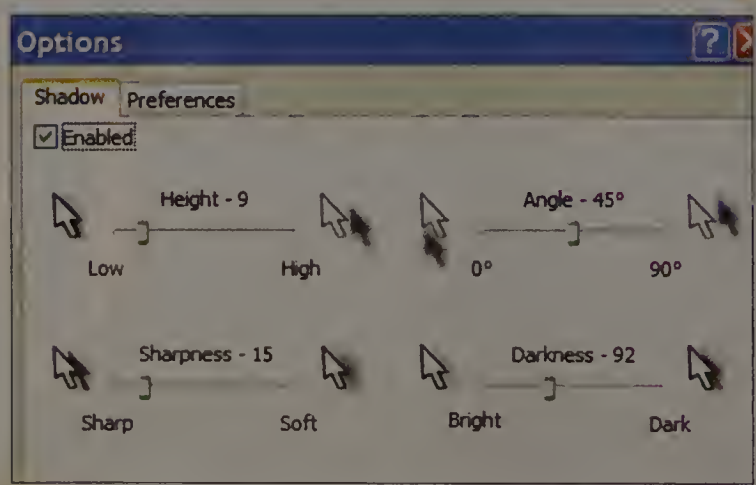
ALL VERSIONS: I must have hundreds of folders on my PC. To quickly see the important ones, I've changed their icons to something eye-catching. You can do it manually in Windows XP: Right-click the folder in Windows Explorer or any folder window, choose *Properties*, click the *Customize* tab, and select *Change Icon*. But it's easier with **ActivIcons** from CursorArts. The tool changes not only folder icons, but also menu icons on the taskbar, icons for system folders, and the Start button. Free, find.pcworld.com/46986

What's in Your PC?

ALL VERSIONS: I always seem to attract a special type of pop quiz at parties: Somebody will ask me about the type of CPU in my PC or if my hard drive is formatted with NTFS or FAT32. So I rely on Lavalys's **Everest Home Edition** to poke into every nook and cranny of my computer and supply a complete inventory of my system's components. Everest will generate a detailed report and save it as a text file. Free, find.pcworld.com/47004

Resize Windows' Windows

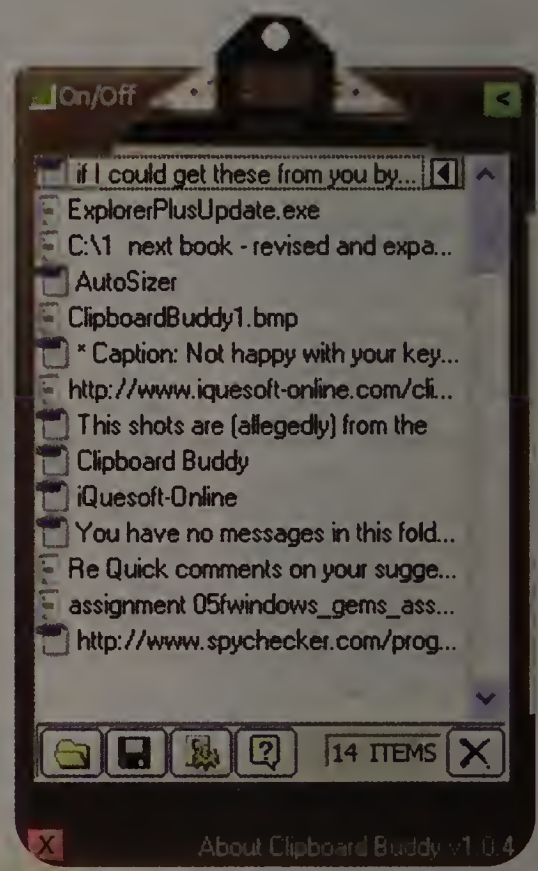
ALL VERSIONS: Have you ever noticed how some programs don't always open in a maximized window? Next time it happens, instead of furrowing your brow, use South Bay Software's **AutoSizer**. The utility forces practically any app's window to open the way you want: maximized, minimized, or even resized to specific dimensions. Free, find.pcworld.com/46998



IF YOU'RE DEALING WITH MOUSING monotony, jazz up your pointer's movements with CursorXP's shadow effects.

Sizzling Cursors

WINDOWS XP AND 2000: Tired of your ho-hum mouse pointer? Mine put me to sleep, so I grabbed Stardock's **CursorXP**. Choose from over 14 designs, including CandyCane, Yin-Yang, and the entertaining animated one called Gear. CursorXP even adds pizzazz to the standard arrow by letting you customize shadows. Free, find.pcworld.com/46972



CUTTING AND PASTING like there's no tomorrow? Clipboard Buddy lets you store up to 100 chunks of text that are easy to grab.

Loaded Clipboard

WINDOWS XP AND 2000: I got tired of Windows' Clipboard limitations, but I didn't want to contend with a heavy-duty Clipboard utility, such as the Microsoft Office Clipboard. My choice is IQuesoft-Online's **Clipboard Buddy**, a tool that holds and retrieves up to 100 items that you've placed in the Windows Clipboard. Free, find.pcworld.com/46996

Keystroke Time-Saver

Must HAVE

ALL VERSIONS: Could you use a free tool for handling small tasks that would ordinarily take multiple keystrokes? Check out WiredPlane Lab's **WireKeys Lite**, which lives in the system tray. With a right-click, it opens Windows' Registry Editor, controls the volume, kills

running processes, restarts the PC, opens the CD tray, or launches the screen saver. Free, find.pcworld.com/46990

Super-Duper Backups

Must HAVE **ALL VERSIONS:** If you don't back up because you think it's too much trouble, you'll change your mind when you try **SyncBackSE** from 2BrightSparks. For $15, SyncBackSE makes backing up a breeze. The program even backs up the files currently open in Outlook and other apps, as well as files that are locked on XP systems with NTFS-formatted drives. (Visit find.pcworld.com/47010 for details about the freebie version.) $15, find.pcworld.com/47012

PC Secrets Revealed

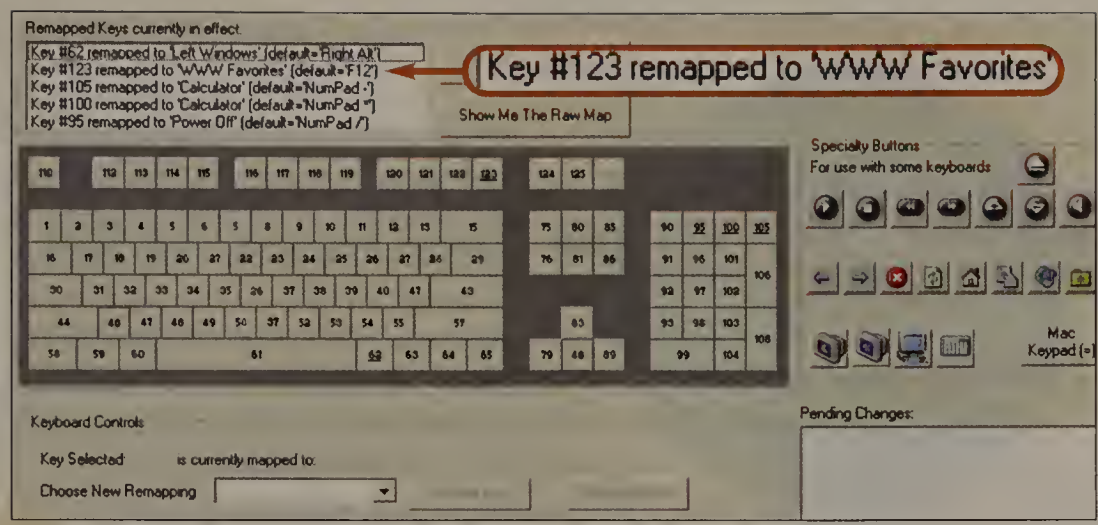
WINDOWS XP AND 2000: The more I know about what my PC is doing, the better I feel. If you visit my home office, you'll see **CoolMon** on my desktop. CoolMon's default configuration lists 11 geeky items, including the amount of RAM currently in use, the number of processes running, and my computer's IP address. Everything occurs in real time. I can monitor up to 44 other conditions, too, such as the PC's temperature and the fan speed. Free, find.pcworld.com/46974

Print Folder File Names

ALL VERSIONS: I had to print a list of MP3 files in one specific folder. Finding a way to do it was a pain in the neck. That's why I didn't mind paying $30 for Glenn Alcott's **Directory Printer**, which sends a folder's file-name listing to a file or printer. If you'd prefer something a lot less fancy—but free—try the **JR Directory Printer Utility**. One limitation: The free program prints only the entire folder listing. Glenn Alcott's Directory Printer, $30, find.pcworld.com/46980; JR Directory Printer, free, find.pcworld.com/46978

Tweak Your Keyboard

Must HAVE **WINDOWS XP AND 2000:** Maybe your notebook's keyboard lacks a <Windows> key. Or perhaps, like me, you want to swap the locations of <Caps Lock> and <Ctrl>. Customize your keyboard easily with Travis Krumsick's **KeyTweak**. For instance, the unused <Alt> key on my IBM ThinkPad, the one on the right side of the keyboard, became my <Windows> key. (You can immediately reverse all of the program's changes.) Free, find.pcworld.com/46988



IF YOU'RE NOT happy with your keyboard's layout, spend 10 minutes remapping it with KeyTweak.

Your Widget Factory

WINDOWS XP AND 2000: To spruce up your desktop, try Pixoria's useful **Konfabulator** Widgets. These handy desktop Widgets include standard fare: clocks, stock tickers, weather, and others. Check out the Web site's Gallery (available at www.widgetgallery.com) for traffic cams, a haiku generator, a FedEx package tracker, and sticky-note reminders. Use **<F8>** to toggle all the Widgets on your desktop to the background. $25 (free trial version), www.konfabulator.com

BRIGHTEN UP YOUR DESKTOP—and make it display useful information—with some nice-looking Konfabulator Widgets.

Flick, Don't Click

ALL VERSIONS: Want to flick your mouse left or right to go forward or back a page in Internet Explorer? You can do this (and more) with Jeff Doozan's **StrokeIt**. This utility has dozens of preset mouse gestures for many popular programs; you can create additional ones in almost any application with a few simple, well, gestures. Free, find.pcworld.com/47000

What's Your Product Key?

WINDOWS XP: If you're using Windows XP, one day someone, probably at Microsoft, will ask you for your Windows Product Key. You might frantically search for your original Windows CD. Here's an easier way: Imran Baig's **WinKeyLite**. There's no installation—just run the program, and it will locate the string of characters you need. Free, find.pcworld.com/46992

EZ File Renaming

ALL VERSIONS: So you copied a zillion photos from a CD, or maybe your camera's memory card, onto your hard drive. All the files have ugly file names, such as "11733IMG.jpg." Plus, they're marked "Read Only," so renaming them easily is nearly impossible. Lucersoft's **Read Only Zero** removes the Read Only attribute from all files in a folder so you can rename to your heart's content. Free, find.pcworld.com/46984 ▶

Internet Winners

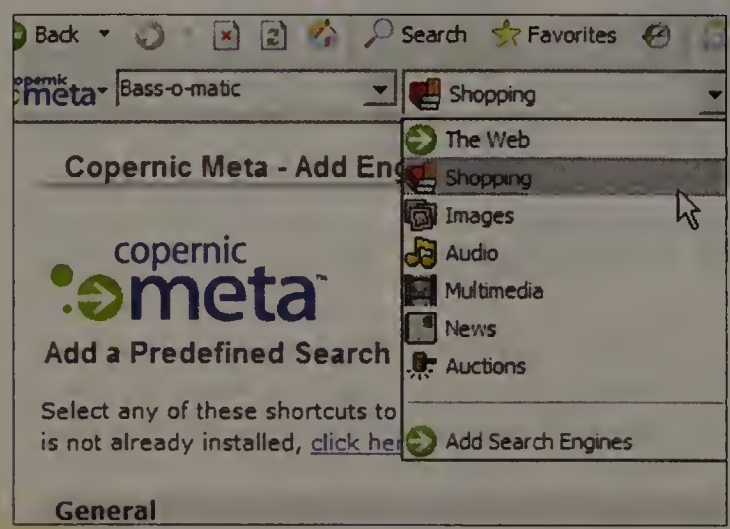
BY SCOTT SPANBAUER

Put a Spell on IE

INTERNET EXPLORER: If you do a lot of typing in IE—for Web e-mail, blogging, forum posts, and so on—how about some spelling help? Red Egg Software's **IeSpell** lets you do a spelling check of the contents of your browser-based jottings using American, British, or Canadian dictionaries, and you can add your own dictionary terms. Free (personal use), $15 (commercial use), find.pcworld.com/47018

So Long, Google?

Must HAVE **INTERNET EXPLORER AND THE WINDOWS TASKBAR:** In a Google rut? Copernic's free search gadget, **Copernic Meta**, puts highly customized Web searches just a click away from whatever you're working on. From the toolbar you can run your search term through Copernic's own topical engines, scroll through recent searches, and add just about any other search engine to Meta's list (Google included). The tool also integrates with **Copernic Agent Basic**, which searches multiple engines at once (Google excluded). Copernic Meta, free, find.pcworld.com/47020; Copernic Agent Basic, free, find.pcworld.com/47022



CAST A WIDE NET on the Web—or a narrow one—when you run your search queries through Copernic Meta.

Cover Your Tracks

INTERNET EXPLORER: Clearing IE's cache—to free up disk space or protect your privacy, say—usually requires digging through multiple levels of menus. BaxterSoft's **CachePal** lets you clear your Internet History, Temporary Internet Files, and Cookies folders with a single click. Windows XP users looking for even deeper cleaning may want to opt for the company's **ScrubXP**, which erases temporary files, URLs, and other sensitive data when XP starts up. CachePal, free, find.pcworld.com/47024; ScrubXP, free, find.pcworld.com/47026

Bookmarks in Sync

INTERNET EXPLORER, FIREFOX, OPERA, NETSCAPE, AND MOZILLA: If you're looking for a painless way to synchronize your bookmarks between different browsers running on the same PC, or even on different computers, let Secure Data Systems' **Sync2It** do the job for you. It automatically synchronizes your bookmarks and favorites whenever you save or delete one. Installing the client software on other PCs lets you sync between home and office, but you can always access your bookmarks from any system by logging in to Sync2It's Web site. $13 per year for personal use, $25 per year for business use (free 90-day trial), find.pcworld.com/47028

Yahoo Helper

INTERNET EXPLORER: Google Toolbar gets rave reviews, but the **Yahoo Toolbar for Internet Explorer**, a free plug-in, could be even more useful (especially if you're a Yahoo habitué). The program puts Yahoo's e-mail, calendar, Internet search, and bookmark services at your fingertips. It also blocks pop-ups and comes with a free anti-spyware program, Yahoo Anti-Spy. If you eschew IE, but still do Yahoo, the free **Yahoo Toolbar for Firefox** (in beta) offers most of the same features. For IE, free, find.pcworld.com/47016; for Firefox, free, find.pcworld.com/47054

Link Firefox and IE

Must HAVE **FIREFOX:** Though not as automated as Sync2It, **SyncMarks** nonetheless offers many ways to import and export bookmarks between Firefox and IE. SyncMarks can automatically synchronize Firefox's bookmarks with IE's favorites on the same machine when you start or exit Firefox. In addition, the program can write either an HTML or an XML version of the faves file locally. Free, find.pcworld.com/47030

Total Tab Control

FIREFOX: Tabbed browsing is a godsend, but this Firefox feature is only about three-quarters baked. **Tabbrowser Preferences** finishes it by adding a new Preferences submenu that offers fine-grained control over the browser's tab behavior. With Tabbrowser installed, you can determine which types of URLs and windows should open in new tabs (or in a separate window). Free, find.pcworld.com/47032

Put It on My Calendar

FIREFOX/THUNDERBIRD: One of the things that makes Outlook essential for many people is the way it combines e-mail, contacts, and calendars. The Mozilla Foundation's Thunderbird e-mail program (with Firefox) offers two-thirds of that formula, and the Foundation's **Sunbird** project—a calendar module still in beta—adds the last piece. Though only in version 0.2, Sunbird already runs on Windows, Linux, and Mac, and it supports shared calendars through remote servers. Free, find.pcworld.com/47034

Your Online File Repository

Must HAVE **GMAIL:** What to do with the gigabyte of free storage that comes with your Gmail account? How about remote file storage or backup? **GMail Drive** creates a virtual file system on top of your Google Gmail account, letting you drag and drop files between your PC

EXPAND YOUR STORAGE OPTIONS by depositing files online as e-mail attachments, with GMail Drive.

and Gmail (stored as Gmail e-mail attachments) using Windows Explorer. GMail Drive has occasional trouble with long file names and with updates to the Gmail site, so don't use it for critical projects. Free, find.pcworld.com/47038

OE Under Control

OUTLOOK EXPRESS: Quantum Whale's **Outlook Express Tweaker** gives you control over a few key OE options, including the ability to eliminate the program's opening splash screen. In addition, you can disable inline images and block executable attachments. The OE helper also allows you to view, edit, export, and import the otherwise unreachable Blocked Senders List. Free, find.pcworld.com/47040

Encrypt the Messenger

AIM, ICQ, MSN MESSENGER, YAHOO MESSENGER, AND TRILLIAN: Most IM apps lack encryption, leaving your conversations and personal data open to snoops. Zone Labs' **IMSecure Pro** adds encryption to all the major IM apps. (In most cases, the other parties must also use IMSecure Pro.) It's designed to block spam and prevent attacks. The company's free (limited) version, IMSecure, encrypts only one of your IM accounts. IMSecure Pro: $20 with $10 annual renewal fee (free 15-day trial), find.pcworld.com/47052 ▶

STEP BY STEP

MAKE YOUR OWN OFFICE ADD-ON

THE RIGHT ADD-ON program can mean the difference between loving and hating an application, but you don't always need a separate utility to rejuvenate your software. In fact, if you know about macros, you can use them to automate and customize your tasks. My favorite Microsoft Office enhancer is one simple autoformat macro routine for Word. Visit find.pcworld.com/47474 for the necessary steps to create a similar macro in Excel, and visit find.pcworld.com/47504 for a more detailed look at Office macros.

The first thing that I do after opening somebody else's Word file is change its loopy font and format to the settings I prefer. Instead of going through the same series of menu clicks every time, I reformat the file with one click of a button or with a keyboard shortcut.

My Word autoformat macro has four steps (your macro and menu selections will vary):

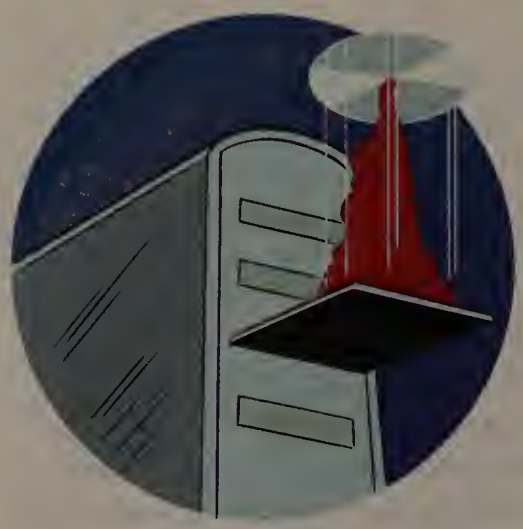
1. Press <Ctrl>-A to select the entire document.
2. Click *Edit•Clear•Formats* to remove the document's existing formatting. This way the file won't revert to 9-point Bookman Old Style (or whatever the original font was) when you enter text on a new line, for example.
3. Choose *File•Page Setup•Margins* and enter 2.5 under the Right setting to move the right margin in 1 inch.
4. Select *Format•Font*, click *Arial* in the Font list, choose *12* in the Size list, and click *OK*.

To record a macro, open Word and click *Tools•Macro•Record New Macro*. In the Macro name box, enter a name, but don't use spaces and don't start with a number. Under 'Store macro in', select *All Documents (Normal.dot)* to make the macro available in all the files you open. To create a toolbar button for the macro or give it a keyboard shortcut, do the following. Click the *Toolbar* button to open the Customize dialog box. Choose *Commands*, and drag the macro you just named to any toolbar. Assign an icon to your macro shortcut to make it pop: Click *Modify Selection•Change Button Image* and choose an icon (see right).

MAKE YOUR MACRO STAND OUT on the Microsoft Word toolbar by choosing a colorful or eye-catching icon for it.

To activate the macro with a keyboard shortcut, click the *Keyboard* button, make sure your new macro is selected under Commands, and click in the 'Press new shortcut key' box. Enter your preferred key sequence (I chose <Alt>-<Shift>-V) and choose the *Assign* button. Click *Close* twice to set the macro recorder in motion.

A cassette-tape icon (or is it an unhappy robot face?) and the Macro Recorder toolbar appear. Step through this reformat macro routine, and when you're done, click the *Stop* button on the Macro Recorder toolbar. Your macro is now ready to use: Click the icon on the toolbar, or type the keyboard shortcut you assigned to it. *—Dennis O'Reilly*

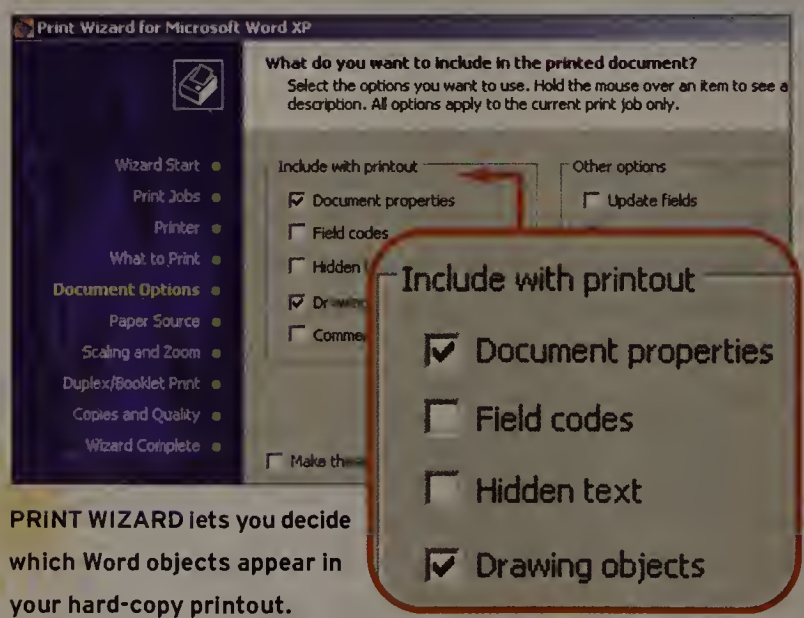


Office Assistants

BY RICK SCOTT

Word Printing Wiz

WORD 2002 AND LATER: With **Print Wizard for Microsoft Word**, you can print any document (open or not), including any part of the document (such as tables or envelopes) or a document outline. When you switch from portrait to landscape mode in Word to create a booklet, say, everything changes—margins, white space, you name it. It's a real pain to make all those changes by hand before you print. Print Wizard helps you avoid that by adjusting the print output. You can also print color documents in black to save ink or toner, and pick one of five quality levels to save still more. The wizard can even report misspellings and grammatical errors before printing begins. $10, find.pcworld.com/47058



PRINT WIZARD lets you decide which Word objects appear in your hard-copy printout.

Drudgery-Free Documents

Must HAVE **WORD 2000 AND LATER:** Think of **DataPrompter 2003** as a document automation tool with flair. It fills in key data in your letters, proposals, contracts, and other frequently needed documents by prompting you for the information that varies in each new document. Prompts can be drop-down lists, check boxes, ordinary text or numeric fields, and even data from your address book. With just one click, DataPrompter can switch pronouns between masculine and feminine, singular and plural. And it's easy to learn. $149 (30-day money-back guarantee), find.pcworld.com/47056

Toys for Wordaholics

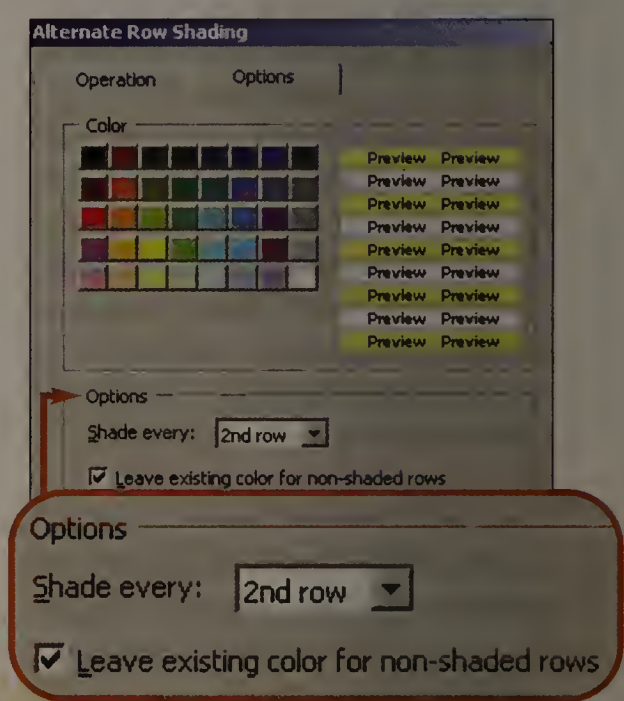
WORD 2000 AND LATER: Do you live in Word all day long? **WordToys** provides a toolbar full of shortcuts to get Word chores done, along with utilities for tasks that Microsoft forgot to cover. Collect documents into a workspace (just as in Excel) to reopen them as a group. In addition, you can save a document *and* a backup version automatically, and insert an accented character, symbol, or bullet graphic in a blink. And forget Word's feeble tracking of just your last nine documents opened; WordToys keeps track of dozens of them. $20 (free 30-day trial), www.wordtoys.com

Word Formatting Made Easy

WORD 97 AND LATER: If you create Word documents that require extensive formatting—brochures or newsletters, for example—you may find Word's formatting idiosyncrasies baffling. **CrossEyes** lets you peer deep into what's going on behind the scenes. The program's colorful window helps you distinguish formatting codes (each color indicates what level of formatting the codes apply to), and you can find out which styles have been applied to selected text (a real time-saver). Understand why two headlines that look the same behave differently when you modify them; or reveal hidden text. Puzzled by what happens to formatting when you delete a paragraph mark? CrossEyes gives you the answer. $50 (free 15-day trial), find.pcworld.com/47072

Data Manipulation Magic

Must HAVE **EXCEL 2000 AND LATER:** For industrial-strength data manipulation, nothing's better than **DigDB**. With this add-on to Excel's main menu, you can filter data on multiple conditions, sort in multiple levels, split tables based on cell values, or insert blank rows at regular intervals. DigDB can also split rows by delimiters (to manage "Last Name, First Name" data, say), and find matching values in two ranges, among other features. Intuitive dialog boxes and wizards make difficult tasks a snap. $59 for a one-year license (free 15-day trial), www.digdb.com



IF YOU'RE FOND OF SHADING alternate rows in Excel tables, make it easy by using Power Utility Pak to pick the color and specify how often a row should change color.

Excel With Bite

EXCEL 2000 AND LATER: **Power Utility Pak 6** adds a main menu option to Excel from which you can shade alternate ▶

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THE MATRIX ONLINE

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rows, format comments, toggle Excel settings from a single dialog box, export a chart to a graphics file, or convert one to a picture. You can print multiple ranges, paste a calendar into your worksheet, and list all cells containing a date. You can also sort worksheets (alphabetically or in custom order), find links, and cure the biggest headache of all by converting absolute and relative addresses. $40 (free 30-day trial), find.pcworld.com/47074

Formulas to the Nth Degree

EXCEL 97 AND LATER: **Excel Power Expander 4** adds to Excel a separate menu option that gives you slick automation tools for tasks from swapping rows and columns to finding duplicate rows to removing extra spaces or empty rows. The add-on's real strength lies in its 111 functions, including a heavy focus on math and trig functions, plus many scientific constants. One big annoyance, however: In the trial version, every time you use Excel Power Expander's main menu to add a function to a cell, up pops a nag screen asking you to upgrade to the paid version. Ugh. $55 (free 30-day trial), find.pcworld.com/47060

Color Your Presentations

POWERPOINT 97 AND LATER: You've seen PowerPoint's default settings a million times: those tired blue backgrounds and generic bullet points. Add some variety to your presentations with new background templates. From abstracts to animated business designs, spring themes to sports motifs, **Brainy Betty** is sure to have something to set your slides apart. Once you select a template, you can tweak the text formatting. The Web site also offers icons and useful advice on presentation design. Free, www.brainybetty.com

Convert PowerPoint in a Flash

POWERPOINT 2000 AND LATER: If you'd like to broaden the audience for your PowerPoint presentation, convert it to streaming video, an AVI file, or a Flash presentation with **Camtasia Studio**. Click a toolbar button in PowerPoint, and Camtasia captures your presentation in real time (including screen transitions and annotations, such as underlining a key point with your mouse). You can add narration, video, and audio clips; then when you're ready, choose a few parameters (output size, speed, and the like) in the recording wizard, and Camtasia builds your video file quickly. It also supports formats for burning to a CD. $299 (free 30-day trial), find.pcworld.com/47061

SPORTS-THEMED SLIDES, anyone? Brainy Betty offers several hundred free PowerPoint presentation templates.

Repurpose Old Slides

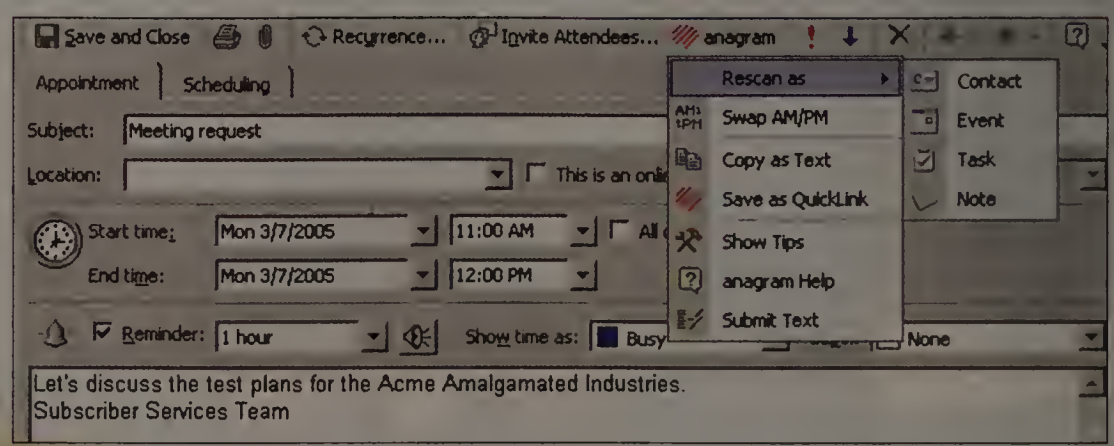
POWERPOINT 2000 AND LATER: Why create a new presentation when you can steal—I mean, reuse—slides from existing presentations? **PointCapture** smoothly merges slides from other presentations into a new slide show. Find slides on your hard drive (by keyword, author, creation date, among other options), and view it in the preview panel. Check the slides you want from those matching your criteria, and with a single click, PointCapture creates a new presentation. $48 (free 10-day trial), find.pcworld.com/47062

Outlook Gets Psychic

Must HAVE **OUTLOOK 97 AND LATER:** Highlight text from an e-mail message that describes a meeting, press a special shortcut key you create ahead of time, and **Anagram** adds the meeting to your Outlook calendar. Picking facts from your selected text, Anagram extracts the appointment date (including converting "tomorrow" to the proper date) and time, and then parses the highlighted message text into the appointment's comments section. Eerily accurate, Anagram smartly copies and pastes text into the right fields of the right Outlook item. $20 (45-day free trial), find.pcworld.com/47273

Automate Outlook

OUTLOOK 2000 AND LATER: **Bells & Whistles for Outlook** saves you dozens of keystrokes by handling such pesky tasks as automatically adding a greeting to a reply, or warning if your outgoing message is missing an attachment (the program checks for variants of "attach" in your e-mail) or a subject line. Bells & Whistles simplifies pasting boilerplate text into the body of a message, and blocking attachments by file type. The program can also add time and date stamps to any message. $20 (free 15-day trial), find.pcworld.com/47064 ▶



ANAGRAM INTERPRETS TEXT you've selected in an e-mail and parses the details into an Outlook entry (shown here). If it gets things wrong, you can change the Outlook item it adds.

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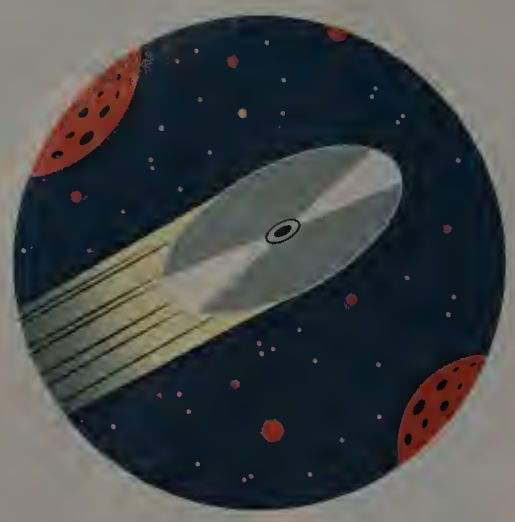


Media Stars

BY LINCOLN SPECTOR

A Better Windows Media Player

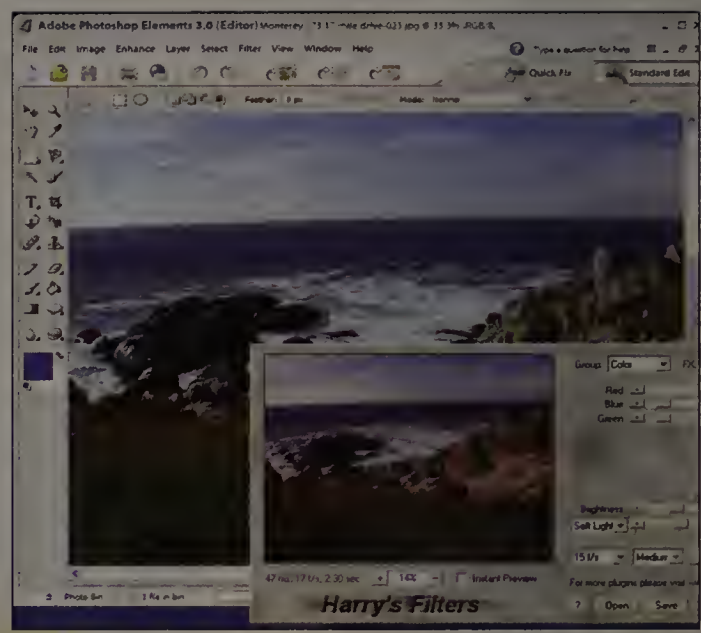
Must HAVE **WINDOWS MEDIA PLAYER:** Microsoft's player would be a lot easier to use if you could control it from the system tray. Enter **Tray Control**, just one of the improvements in PowerToys for Windows Media Player for Windows XP (part of Microsoft's Windows Media Bonus Pack for Windows XP). Click Tray Control's always-visible icon to pause the music, or right-click to skip a track or mute. There's also a skin importer and a Media Library Management Wizard, which helps you organize your overflowing music collection into an assortment of playlists. Free, find.pcworld.com/46958

Three Players in One

Must HAVE **WINDOWS MEDIA PLAYER:** Some media files require QuickTime. Others will run only in RealPlayer. And for still others, you're pretty much stuck with Windows Media Player. So you've got three big, intrusive programs that do just about the same thing. **QuickTime Alternative** and **Real Alternative** let Windows Media Player play the other programs' formats. Free, www.free-codecs.com

Winamp Amplified

WINAMP: Prefer Winamp to the better-known players? With Intellized.computing's **TrayList**, you'll like Winamp even more. TrayList gives Winamp a playlist editor and a song search engine. The hot-keys, including ones you program for particular songs, work when Winamp is in the background. $20 (free 30-day trial), www.intellized.com



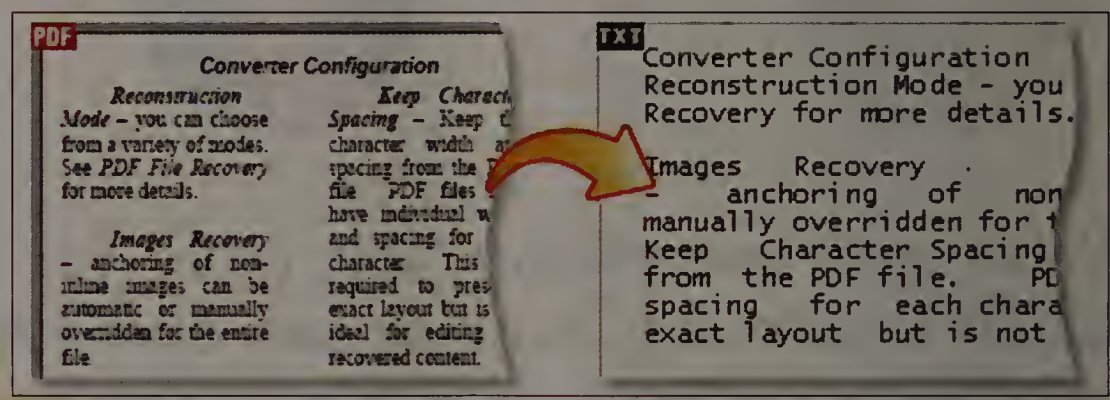
PHOTOSHOP AND PAINT SHOP PRO fans can give their photos different looks with color options in Harry's Filters.

Photo Transformations

PHOTOSHOP AND PAINT SHOP PRO: If you'd like to add twilight colors or some other effect to your photos, try **Harry's Filters** from the Plugin Site—it lets you do those things and much more. Make your photos look like cartoon art or crochet, for instance. This free plug-in separates its 69 filters into categories like Color, Warp, and Noise, and provides tools for minutely adjusting each filter. You can play the current filter's settings like a video. Some filters are so extreme you won't find your original photo in the resulting image. Free, find.pcworld.com/46966

Simple PDF Conversions

ACROBAT READER: If you've ever wanted to edit a PDF file, you'll like Voyager-Soft's **Solid Converter PDF**. The application uses a wizard to walk you through various options before it converts the PDF into a text file or Word document. With the Word option, you can choose to maintain column formatting or you can anchor pictures to a page or paragraph, for example. The application also converts Word files into PDFs. $50 (free 15-day trial), www.soliddocuments.com ■



SOLID CONVERTER lets you dictate formatting changes when you turn PDFs into editable files.

Steve Bass, Scott Spanbauer, and Lincoln Spector are contributing editors for PC World. *Rick Scott is a reviewer at* The Office Letter *(www.officeletter.com). Dennis O'Reilly is a* PC World *senior associate editor.*

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FREE!
FREE!
FR

INBOX T@MERS

New e-mail options on the Web and on your desktop make dodging spam and staying organized easier than ever. **By Kevin Savetz**

WEB MAIL HAS come of age. It used to be an inferior way to get your messages: Storage capacity was low, and the services were simple. No more. Web mail services now offer spelling checkers, access to POP3 accounts, virus scanners—and plenty of storage space.

Client applications are typically more customizable than a Web service, and usually include collaboration functions. But if you don't need such extras, a Web service could suffice.

We scouted four Web services and four desktop clients to find out which have the best features and which do the best job of keeping your mailbox free of spam. Plus, we looked at a Web service that filters spam for multiple e-mail accounts and aggregates their inboxes.

You can choose from among several free, advertising-supported Web services—or spend about $20 a year for a service with enhanced functions and oodles of storage space. Gmail earned our Best Buy nod in part because it costs nothing and gives you 1GB of storage capacity. We also liked FastMail's paid services, which provide every tool an e-mail guru could want.

Among desktop apps, Mozilla Thunderbird won our Best Buy because it's free and full of features, but corporate users will prefer Outlook 2003 for its unmatched collaboration tools. ▶

80 WEB-BASED E-MAIL SERVICES
82 WEB-BASED SPAM FILTER
84 DESKTOP E-MAIL CLIENTS
86 SPAM FILTER TEST RESULTS
88 E-MAIL ANYWHERE: GETTING MESSAGES ON A CELL PHONE

ILLUSTRATION: HEADCASE DESIGN

Web Mail Services

FASTMAIL

IF YOU TAKE your e-mail seriously, FastMail is the service for you. It lets you pick from more than a dozen domain names for your e-mail address, set up mail aliases so you can protect your primary addresses from spammers, and more. From searching old mail to accessing your address book, FastMail is both speedy and smart.

You can compose messages as text or use the cool WYSIWYG HTML editor—this is the only Web mail service we tested with such an editor.

FastMail is one of only two services we tested that scan for viruses; the other is Yahoo Mail.

FastMail is also the only Web service we tested that supports the IMAP protocol for accessing your account from a desktop e-mail client (to use POP3 you must pay the $20 or $40 annual fee). Also, you can download mail from other e-mail servers to your FastMail account, and arrange for the service to automatically fetch messages every 3 or 12 hours.

At its default setting, the spam filter was the least effective of those offered by Web services: 36 junk messages landed in the spam folder, but 21 others appeared in our inbox. FastMail's paid accounts offer more options, however, such as a unique "custom" mode that uses the SpamAssassin engine to assign a "spam score" to each message. You can assign three different actions based on these scores, telling FastMail to delete the messages, move them to a specified folder, or change their subject line to something like "I Love Spam." In addition, FastMail is one of only two services we tested that scan for viruses; the other is Yahoo Mail.

We appreciated FastMail's security consciousness, as well: When we chose an easy-to-guess password, the service recommended that we select a more robust one.

FastMail offers four types of accounts: The free Guest account provides 10MB of mail storage space but limits you to 40MB of mail and attachments per month and prohibits commercial use. (FastMail is the only service we tested that has an explicit bandwidth limitation.) Free accounts are deleted after only 45 days of inactivity. A one-time $15 fee gets you a Member account, with 16MB of storage, twice the bandwidth of the free account, a virus scanner, an SMTP server for sending messages

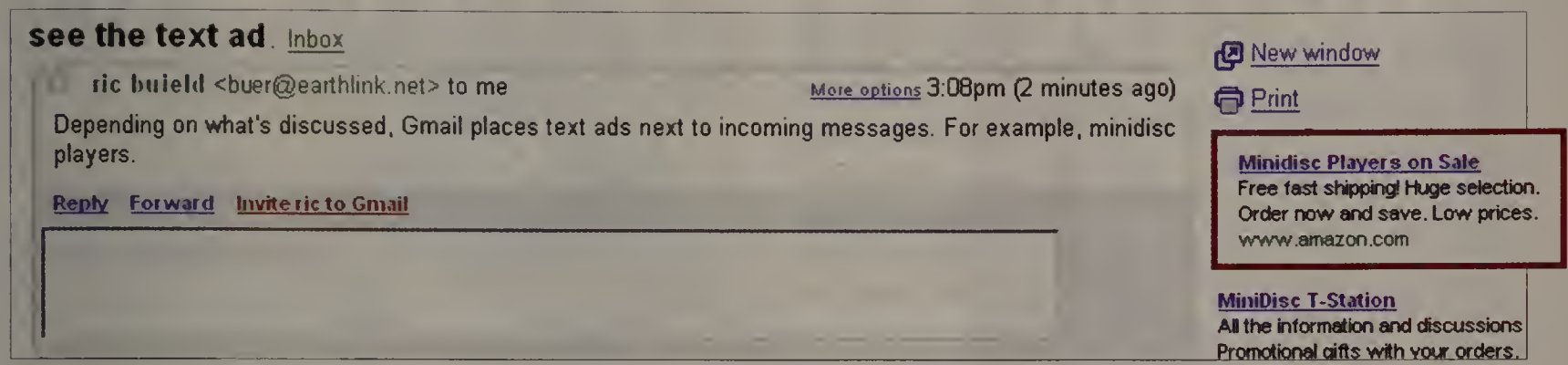
FEATURES COMPARISON

Web-Based E-Mail Comes of Age

GMAIL LACKS THE CLUTTER of other free offerings and gives you 1GB of storage, but it lacks a virus scanner.

WEB-BASED E-MAIL	Basics	Performance	Extra features	Comments
FastMail ★★★★½ find.pcworld.com/47096	• Free, 10MB storage • $15 one-time, 16MB storage • $20 or $40 per year; 600MB or 2GB storage, respectively	• Ease of use: Very Good • Features: Outstanding • Spam filtering: Fair • Overall speed: Very Good	• Virus scanning, adjustable spam filter • POP3, IMAP, Hotmail accounts • HTML editor, notepad • Mail forwarding, e-mail aliases	FastMail offers a clean, intuitive interface and many domain names to choose from. It can schedule downloads from POP3/IMAP accounts and scan for viruses, and it includes a unique HTML editor.
Google Gmail Best BUY ★★★★½ find.pcworld.com/47098	• Free (beta), 1GB storage • $40 per year, 2GB storage • No graphical ads	• Ease of use: Outstanding • Features: Outstanding • Spam filtering: Very Good • Overall speed: Very Good	• Mail forwarding • Accessible from POP3 accounts • E-mail-received alerts • Address entry completion	Google Gmail's sparse interface is free of graphical ads, and its rules-based filters offer a lot of control. Gmail Notifier can alert you when new messages arrive, even if you're not logged in.
MSN Hotmail ★★★☆☆ find.pcworld.com/47100	• Free, 250MB storage • $20 per year, 2GB storage • Lots of ads in free version	• Ease of use: Fair • Features: Fair • Spam filtering: Good • Overall speed: Fair	• Read with Outlook and Outlook Express • Adjustable spam filter • Calendar, tasks, notepad	The free version of Hotmail has ads everywhere, and the interface is a little clumsy. Though you can adjust the level of spam protection, messages in the spam folder are cleared after only five days.
Yahoo Mail ★★★★ find.pcworld.com/47102	• Free, 250MB storage • $20 per year, 2GB storage • Lots of ads in free version	• Ease of use: Very Good • Features: Very Good • Spam filtering: Good • Overall speed: Fair	• Virus scanning and cleaning • POP3 accounts, mail forwarding • Calendar, tasks, notepad; color coding • E-mail aliases, address entry completion	Yahoo Mail's free version serves up many ads, though the interface is intuitive. Intellisync application synchronizes address book, calendar, and so on with a POA or with organization software.

CHART NOTES: The spam-filtering performance scores on this chart are based on less-formal testing than that conducted on desktop e-mail clients. We set up an account on each service on 1/24/05 and monitored it for 18 days. We tested each service's spam filter at default settings.



GMAIL is free of clutter, though it displays text ads based on topics discussed in your e-mail.

from your desktop e-mail client instead of from a Web browser, and other features. The Full and Enhanced accounts, which cost $20 and $40 per year respectively, deliver up to 2GB of mail storage, plus file space, IMAP and POP3 access, and adjustable spam filtering. But even the free account that we set up was devoid of advertisements.

GOOGLE GMAIL

GOOGLE'S GMAIL IS a winner. It delivers features for free that many other Web-based mail services charge for, or don't offer at all. At 1GB, it supplies the largest inbox of the free services we tested.

Gmail is snappy—so fast in fact that it acts more like software on your desktop than like a Web site. When you start typing an e-mail address, for example, a list of recently used addresses quickly pops up. A speedy search function lets you locate messages across your folders in a fraction of a second.

The spam filter isn't configurable, but it works well. During our test period, nine junk messages landed in our inbox and one legitimate piece was misfiled into the spam folder. Messages in the spam folder are automatically deleted after 30 days.

Gmail's rules-based filters trump Hotmail's and Yahoo Mail's offerings, allowing you to automatically label, forward, archive, or delete incoming messages based on the sender, on the subject, or on words in the message body.

The interface is sparkling clean, and the advertisements are a breath of fresh air compared with those on Hotmail and Yahoo Mail. Text ads show up to the right of some incoming messages, and that's it: No graphical ads display at all. Unlike the free versions of Hotmail and Yahoo Mail, Gmail doesn't paste ads to the end of your outgoing messages. However, Gmail scans the text of incoming messages in deciding which ads to display, which worries some privacy advocates.

You can download messages to your desktop client using POP3 (but not IMAP) and automatically forward incoming mail to another address, useful features missing in the other free services. The Gmail Notifier app can alert you when messages arrive, even if you aren't logged in to Gmail—another unique feature. Gmail has no calendar or task lists, however: It's strictly about e-mail.

The service removes dormant accounts after nine months of inactivity, a significantly longer period than either Hotmail or Yahoo Mail allows.

To get a Gmail account, you need to be invited by someone who already has one. Or, you can use the Gmail Invite Spooler (isnoop.net/gmail).

MSN HOTMAIL

OUR EYES ARE burning after reviewing MSN Hotmail: We saw enough ads there to last a lifetime. Most free Web mail services have advertising, but Hotmail goes way overboard with banners, skyscrapers, "featured offers," and aspirin-size buttons everywhere. It's hard to care about the service's merits after wading though all that.

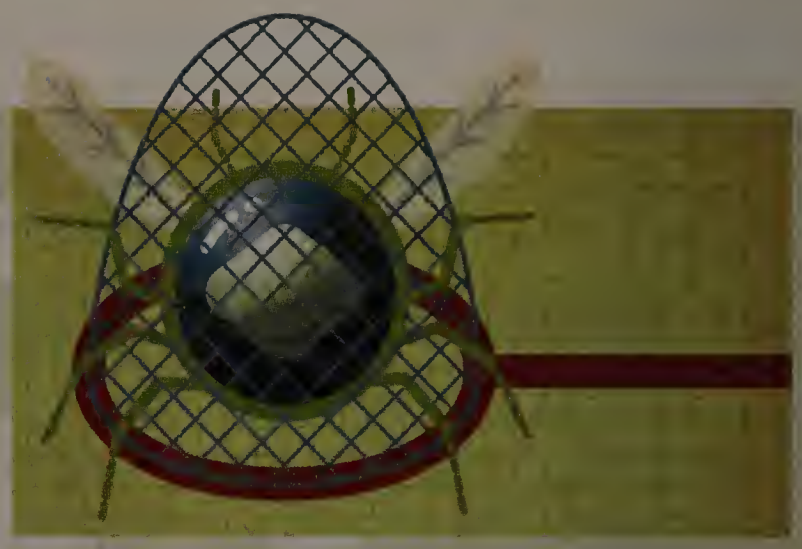
Hotmail provides 250MB of storage for free, as Yahoo Mail does, though it's significantly less than the 1GB that Gmail offers.

Hotmail deletes messages in the spam folder after only 5 days, which gives you little time to catch misfiled mail. In addition, Hotmail accounts that are left unused for more than 30 days may be deleted.

An upgrade to Hotmail Plus for $20 per year fetches you 2GB of storage space, permits file attachments of 20MB or less per message, and mercifully removes the glut of graphical advertisements. And a Plus account doesn't ex- ▶

MSN HOTMAIL serves up so many ads, you likely won't care about the collaboration tools and other features.

OnlyMyEmail: The Garbage Collector



IF YOU HAVE multiple e-mail addresses that are in need of a better spam filter, OnlyMyEmail might be the answer. Though the service provides an e-mail address and Web mail interface, its primary purpose is to remove spam from existing e-mail accounts. The system can check up to three POP3 or IMAP e-mail accounts—unifying them into a single inbox—and you don't have to abandon your current e-mail client. The service costs $3 per month, after a ten-day free trial.

We linked our OnlyMyEmail account to a mailbox filled with more than 3000 messages—mostly spam. The results were very positive: Only 11 junk messages reached our inbox, while the service dutifully removed the rest. Only one legitimate message, a newsletter subscription verification, was misinterpreted as spam.

We like the way OnlyMyEmail deals with junk: Rather than deliver it to a spam box that needs periodic attention, the service sends a daily e-mail summarizing the spam, viruses, and other nastygrams you've received. You can review a list of captured messages and have legitimate messages moved back into your inbox. You can also tell the system exactly what you characterize as junk, including virus-laden e-mail, messages from senders with foreign domains, newsletters, and direct-marketing announcements.

If you don't need to consolidate multiple e-mail accounts or don't want to use a Web browser to manage your spam folder, a spam filter that works with your e-mail client might be preferable. Some spam filters place a convenient toolbar in a POP3 e-mail client.

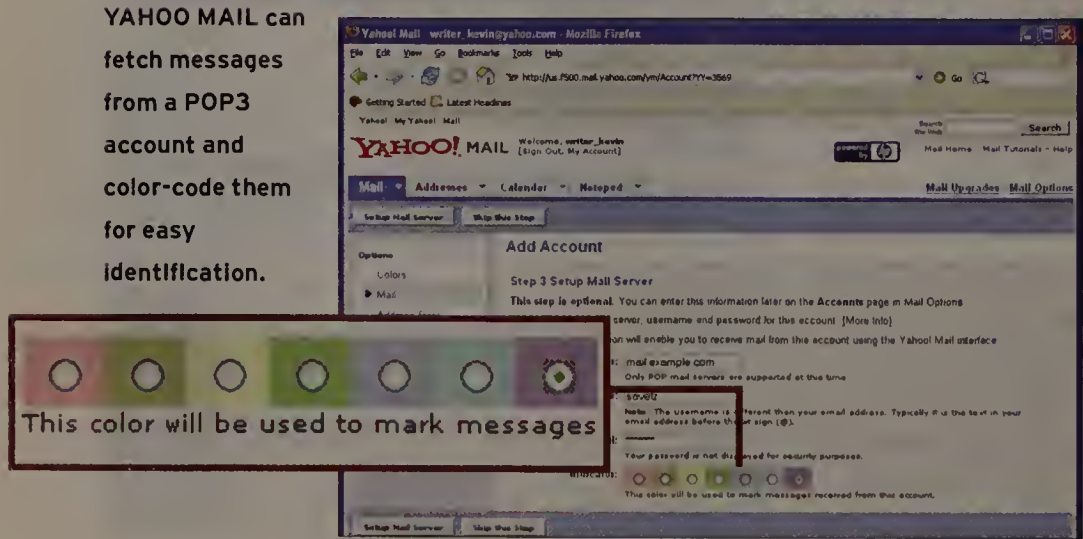
When you can't use your regular e-mail software, OnlyMyEmail offers a convenient though bare-bones Web mail interface. OnlyMyEmail is the sole Web mail service we tested that doesn't have a spelling checker, and it lacks other niceties for everyday use.

Accessed from an e-mail client, OnlyMyEmail is almost invisible, doing its work quietly and well. It's a reliable way to consolidate a few older, spam-filled accounts and make them useful again. *—K.S.*

• **OnlyMyEmail,** $3 per month, ★★★★ www.onlymyemail.com

pire simply because you don't use it often, either.

The junk mail filter is available at three levels: low, enhanced, and exclusive, which delivers mail only from people in your contacts list. Enhanced mode did an acceptable job, letting only nine junk messages into our inbox. However, it took the bait on four messages that we crafted using suspect words, classifying them as spam; in comparison, Gmail filtered only one of the messages erroneously, and both FastMail and Yahoo Mail correctly put all four in the inbox. To hone the Hotmail filter's work, you can set up blacklists and whitelists.



YAHOO MAIL can fetch messages from a POP3 account and color-code them for easy identification.

The Hotmail interface is a little bit clumsy; for example, adding a new friend to the contacts list requires multiple steps. However, the service provides a few collaboration tools. The calendar has a tasks list, and it can send reminders to Hotmail and MSN e-mail addresses. Also, you can publish your calendar on the Web. Overall, Hotmail provides a reasonable Web-based e-mail experience if you can endure the incessant ads.

YAHOO MAIL

YAHOO MAIL PROVIDES 250MB of storage and an intuitive interface. Like Hotmail, the free version has a lot of advertisements, though there seem to be slightly fewer of them and Yahoo Mail's better features—such as virus scanning and access to outside e-mail accounts—make them more tolerable. In the free version, attachments are scanned for viruses, an important feature that's missing in the other free Web services we tested.

When you are entering the name of the recipient for a new message, autocompletion provides quick access to the address book, as in Gmail. But Yahoo's message filters are more simplistic than ▶

ILLUSTRATION: HEADCASE DESIGN

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FEATURES COMPARISON

E-Mail Software: Free and For-Pay Inboxes

THUNDERBIRD OFFERS MANY OF THE SAME features that paid programs do, but Outlook is better suited for corporate use.

E-MAIL SOFTWARE	Basics	Spam test results	Performance and extras	Comments
Microsoft Outlook 2003 ★★★★☆ find.pcworld.com/47104	• $109 • IMAP, MSN, POP3 accounts • Custom rules/filters • Spelling checker	• Spam identified after training: 94% • Legitimate mail called spam: 0.8%	• Ease of use: Very Good • Features: Very Good • Digital signatures and encryption, contact management, file sharing, automatic message archiving	Outlook's collaboration tools—and their tight integration with Microsoft Office—make this application a top choice for business users. The spam filter works well right out of the box.
Mozilla Thunderbird 1.0 Best BUY ★★★★½ find.pcworld.com/47106	• Free • IMAP, POP3 accounts • Custom rules/filters • Spelling checker	• Spam identified after training: 95% • Legitimate mail called spam: 0.8%	• Ease of use: Outstanding • Features: Very Good • Digital signatures and encryption, RSS reader, newsgroup client, downloadable extensions, color coding	The open-source Thunderbird 1.0 is easy to use and speedy. The program offers many downloadable extensions and a basic RSS reader. It can't automatically forward messages, however.
PocoMail 3.2 ★★★½☆ find.pcworld.com/47108	• $40 • IMAP, POP3 accounts • Custom rules/filters • Spelling checker	• Spam identified after training: 90% • Legitimate mail called spam: 1.6%	• Ease of use: Very Good • Features: Good • Adjustable spam filter, newsgroup client, scripting language	PocoMail is competent but basic, offering no collaboration tools or other exemplary features. The spam filter, though adjustable, was ineffective until we trained it.
Qualcomm Eudora 6.2 ★★★ find.pcworld.com/47110	• Free,[1] $50 • IMAP, POP3 accounts • Custom rules/filters • Spelling checker	• Spam identified after training: 98% • Legitimate mail called spam: 1.6%	• Ease of use: Fair • Features: Very Good • Digital signatures and encryption, antiphishing and flame warnings, color coding for messages	Eudora offers an odd mix of advanced and novice tools, such as warnings against potential scams. Plenty of plug-ins are available, but the interface needs an overhaul.

FOOTNOTE: [1] Eudora has two free versions: all features (except the spam filter) with advertisements, and fewer features without ads. **HOW WE TEST:** AV-Test.org performed spam filter testing on behalf of *PC World*. Each program downloaded and filtered a test mail sample containing 500 messages, 250 of which our testers identified as spam. The testers trained each junk mail filter, identifying for it any of the first 125 spam messages that landed in the inbox. The percentages given are for the last 125 legitimate messages and 125 spam messages, after training was completed.

Gmail's and Hotmail's, allowing you only to automatically move messages to designated folders.

Yahoo was less successful at filtering spam than Gmail and Hotmail. It let 25 junk messages slip into our inbox, though it correctly filtered 67 junk messages. Unlike Hotmail, Yahoo Mail did not misidentify the four messages we created with suspect subject lines, correctly placing them in the inbox. Yahoo stores messages in its spam folder for one month before deleting them.

Yahoo Mail can fetch messages from your ISP's POP3 e-mail account—a feature that Gmail and Hotmail lack. It color-codes messages imported from other servers for easy identification.

You can share your Yahoo calendar with friends or publish it to the Web. A unique synchronization feature permits you to move your contacts, calendar, and notepad between the service and a PDA or organization software.

Accounts are deactivated after four months of inactivity, which is a considerably longer fallow period than Hotmail allows.

By upgrading to Yahoo Mail Plus, for $20 per year, you obtain 2GB of storage with a 20MB limit per attachment. The premium version also adds the abilities to create disposable e-mail addresses (which you use temporarily to register at Web sites that might spam you, for example), access your e-mail from a POP3 (but not an IMAP) e-mail client, and teach the spam filter. Also, you get automatic virus cleaning, and ads disappear from the site.

Desktop Clients

MICROSOFT OUTLOOK

THE NAME OUTLOOK 2003 might make the program sound past its prime. In fact, this e-mail app remains a worthy contender for corporate users, but its helpful collaboration features are overkill for most home and small-office users.

Outlook is available by itself for $109 or as part of Microsoft Office.

Outlook's unique rules wizard for setting up mail filters could make the task easier for newbies. Outlook also has the ability to send encrypted and digitally signed messages. When your correspondents use a compatible mail program, you can restrict them from forwarding your mail, or you can set the message to expire after a certain date, a function unavailable in the other mail clients we tested.

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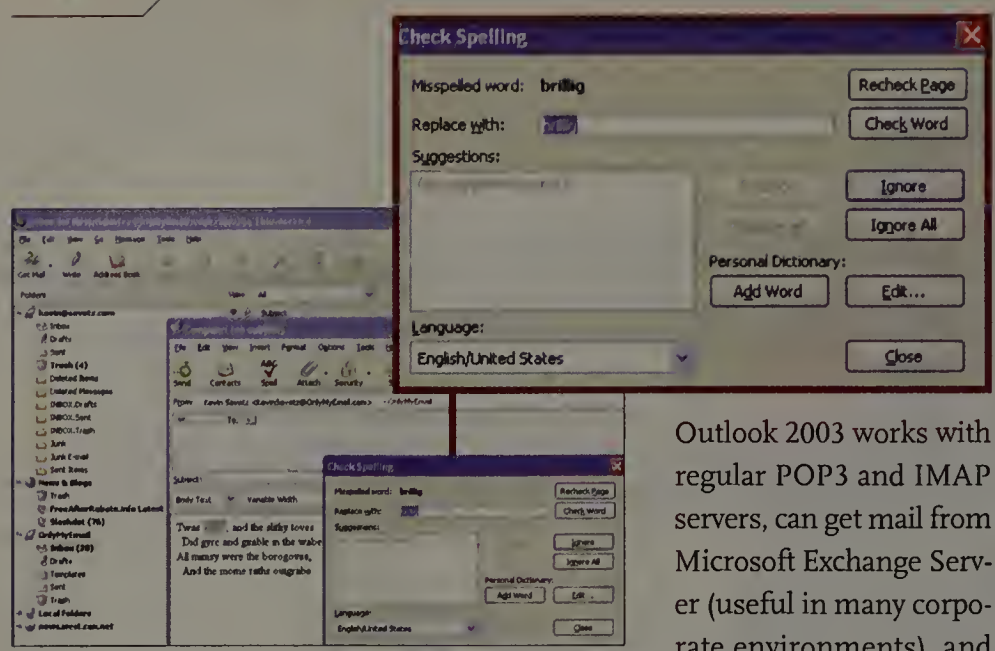


THUNDERBIRD'S spelling checker can't check spelling while you type, as PocoMail and Eudora can.

Outlook 2003 works with regular POP3 and IMAP servers, can get mail from Microsoft Exchange Server (useful in many corporate environments), and can download mail from Hotmail Plus accounts. Unlike PocoMail and Thunderbird, however, Outlook doesn't include a newsgroup reader.

Without any training Outlook's spam filter identified more junk mail than any other client app: It caught 19 of the first 25 spam messages testers sent it. After testers had trained its filter, Outlook caught 94 percent of the junk.

The calendar, task manager, and contacts manager are nicely integrated. Also, you can initiate instant messaging conversations from Outlook.

MOZILLA THUNDERBIRD

FOR HOME AND SMALL-BUSINESS users who want very good features but don't want to pay for e-mail, Mozilla Thunderbird 1.0 is our top choice.

Commands are easy to find, and the search field provides instant gratification: Type a few letters of the subject or the sender's name, and a crowded inbox is reduced to the messages that match. In addition you can customize the views with categories like "Unread" or "Last 5 days."

The program can encrypt messages and attach a digital signing certificate. Thunderbird's filters automatically file and color-code messages, though they lack Eudora's ability to match patterns or automatically forward a message. Our biggest complaint is that Thunderbird's spelling checker works only after you've finished composing a message: It can't check your spelling as you type.

Without any training, Thunderbird's spam filter caught 18 of the first 25 spam messages it received, just shy of the success rate of Outlook's filter. After our testers finished training it, the filter caught 95 percent of the junk mail it received.

Downloadable extensions allow you to add new tools to the program. Among the dozens of add-ons available at the Mozilla Web site are a dictionary search function and support for mouse gestures, which allow you to execute a command (such as opening the next message) by right-clicking and pushing the mouse to the right, for example.

Besides supporting POP3 and IMAP for e-mail, the application serves as a Usenet newsgroup client and as an RSS (Really Simple Syndication) reader. The RSS reader is a nice touch, and Thunderbird is the only desktop e-mail client we looked at that includes one. Given the growing popularity of blogs, it is a sensible addition to an e-mail program. ▶

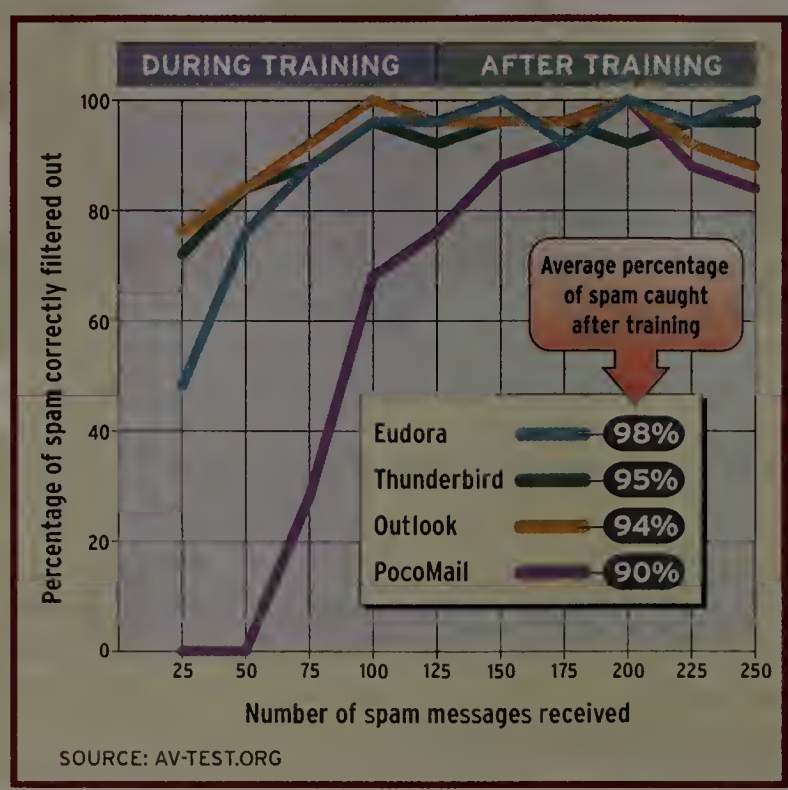
Spam Filters: The Learning Curve

TO SEE HOW WELL the four desktop clients filtered spam, we asked AV-Test.org to evaluate them. Each app received a total of 500 messages: ten batches, 50 messages at a time, with the results measured after each batch. Half of the sent messages were junk and the other half were legitimate, including some newsletters. The testers used each application's default spam-filter settings.

After each of the first five batches, the testers taught each application's filter which messages—125 in total—were spam. Then the testers let the apps sift through the last 250 messages, without further instruction.

Though all of the programs eventually achieved at least a 90 percent success rate, some of them had a more difficult learning curve. Outlook was the most impressive out of the box, identifying 19 of the 25 spam messages in the first batch. PocoMail, on the other hand, learned relatively slowly: Its junk mail filter is turned off by default, and the program missed the first 50 junk messages. However, PocoMail also has a Bayesian filter, which examines all of the text in a message to determine whether that message is spam, though the user must train it. Eventually—after AV-Test's testers identified the first 125 spam messages for it—PocoMail's Bayesian filter caught up to the rest of the class, correctly filtering 90 percent of the remaining junk mail.

—Eric Butterfield



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Getting E-Mail on Your Phone

TO GET YOUR e-mail on an Internet-ready phone, you have to pick the right wireless carrier. First, make sure that your carrier supports the protocol used by the e-mail account your ISP gives you. Most major wireless carriers support POP3 (Post Office Protocol 3), though Verizon supports only IMAP (Internet Message Access Protocol).

Even if your business's e-mail system supports the same protocol as your wireless carrier, consult your IS department. Though both Microsoft Exchange and IBM Lotus Domino servers support POP3 and IMAP, your company's virtual private network requirements or firewall settings could stymie access.

For accessing your Web mail, choose a wireless carrier that offers a micro-browser version. All five carriers listed in the chart at right offer AOL Mail, and most provide MSN Hotmail or Yahoo Mail.

Also, beware of charges: With Cingular's $3-per-month plan, for example, you'll pay 2 cents per kilobyte of transmitted data. Nextel, Sprint PCS, and T-Mobile offer plans with unlimited usage. *—Eric Butterfield*

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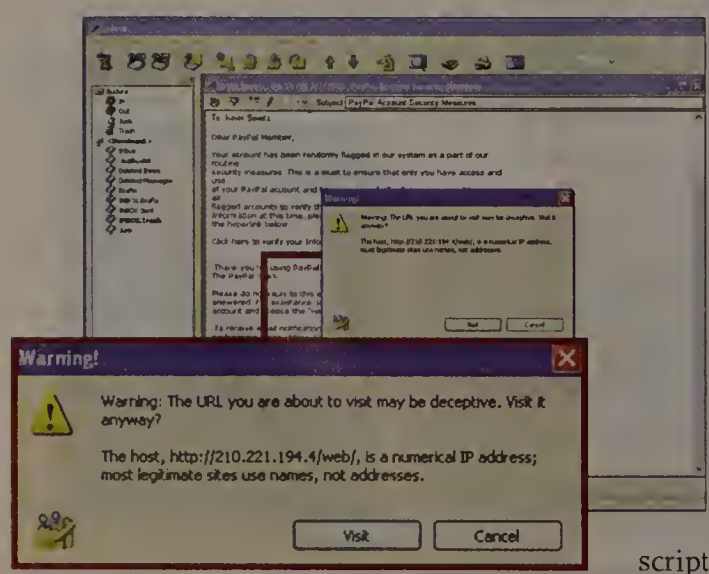
POCOMAIL 3.2

POCOMAIL 3.2 IS A decent, basic e-mail client that doesn't overwhelm you with extra features. It has no RSS viewer or collaboration tools, just straightforward, reliable POP3 and IMAP e-mail. With scripting and numerous configuration options, it could appeal to control freaks, but we can't find many reasons to spend $40 on PocoMail when free e-mail clients can work just as well.

PocoMail's interface can be convoluted, though its tabs let you conveniently switch between folders. Also, the program can check spelling as you type. Other features include message threading for following conversations, automatic completion of phrases (for example, you can set it to replace "yt" with "Yours Truly, Frederick Smelty III"), and a pop-up window that permits you to read a new message while you use another application.

Oddly, in PocoMail's default settings the junk mail filter is turned off. But PocoMail also has a Bayesian filter, which eventually learned to filter out 90 percent of the spam it received.

PocoMail 3.2's built-in scripting language enables you to build automated mail-handling tasks, such as finding all messages that you haven't replied to yet. Also, PocoMail offers a decent Usenet client.



FOR INEXPERIENCED e-mailers, Eudora pops up unique alerts to warn of "phishing" attempts in incoming mail.

QUALCOMM EUDORA 6.2

IF EUDORA 6.2 WERE A PERSON, it would be a middle-aged man enduring a midlife crisis: smart and capable, but no longer youthful looking and hip. Eudora's interface is cluttered, and it reminded us of Windows 3.1, with countless cryptic, unlabeled icons littering the landscape.

Interesting features aimed at newbies include MoodWatch, which warns users that they might be writing an inflammatory message, and alerts about potential "phishing" attempts in incoming mail.

Eudora serves up SSL encryption, graphs of e-mail statistics, and powerful filters. For example, you can have it automatically forward messages with a specified number of letters in the subject line.

Plug-ins can adjust text by rewrapping, sorting, and fixing capitalization. But the search function is like molasses compared with Thunderbird's.

After our testers trained it, Eudora's spam filter identified 98 percent of the junk mail it received. At the outset, however, it spotted only 12 of the first 25 junk messages sent to it. ■

Kevin Savetz is a freelance technology writer who has written for more than 80 publications. Eric Butterfield is an associate editor for PC World.

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April/May 2005

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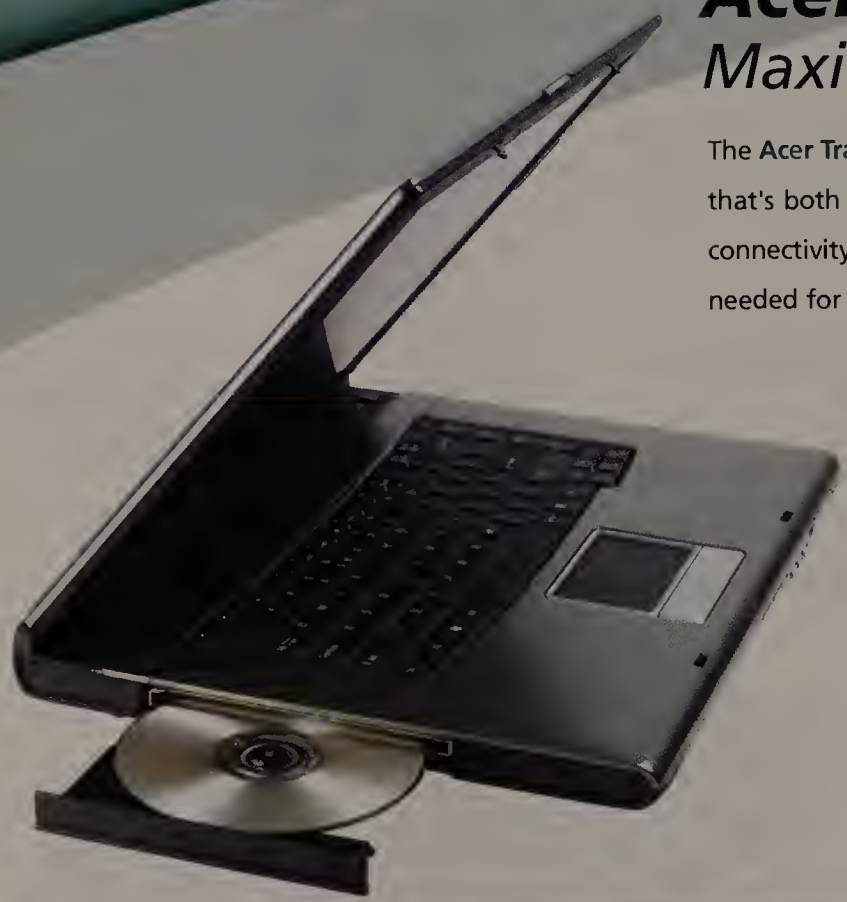

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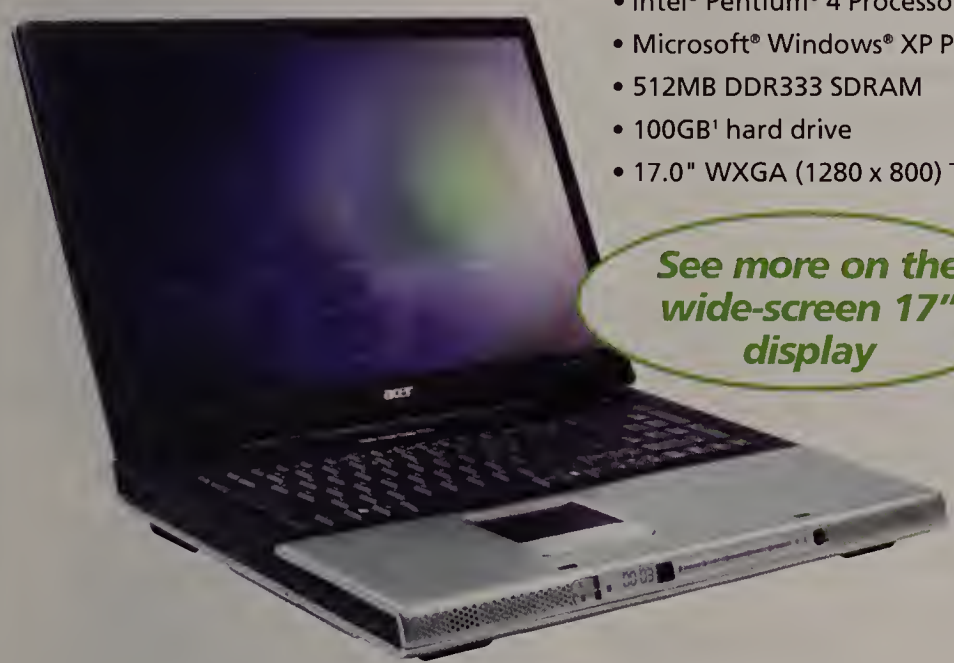
Let the **Acer Aspire 1800** be your portable entertainment and creativity center. Play the latest games, watch your favorite movies, edit videos or use power-hungry productivity applications. You won't miss one show-stopping moment on the 17.0" wide-screen display, and thanks to the ATI MOBILITY™ RADEON® X600 chip, you'll experience new levels of graphics performance. Instead of being tied to your desk, enjoy the best in multimedia all around your home.



- Intel® Pentium® 4 Processor with HT Technology
- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM
- 100GB[1] hard drive
- 17.0" WXGA (1280 x 800) TFT display
- Integrated Super-Multi Drive (DVD+R, DVD-R, DVD-RAM)
- ATI MOBILITY™ RADEON® X600 graphics, 128MB DDR
- 802.11b/g WLAN, Bluetooth®, gigabit LAN, V.92 modem
- One-year limited warranty[2]

See more on the wide-screen 17" display

Acer Aspire 1804WSMi-128MB-XPP

$1,699

INTEL® PENTIUM® 4 PROCESSOR 540 WITH HT TECHNOLOGY
(3.20GHz, 1MB L2 CACHE, 800MHz FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL
(LX.A39006.002)

Acer® TravelMate® 2700

Performance Teamed with Practicality

Savvy users know that a wide-angle display can make work easier and enhance productivity. You'll see sharp text and crisp images on the **Acer TravelMate 2700**'s 15.4" wide-angle LCD and have the convenience of viewing spreadsheets side by side on a single screen. Combining practicality with first-class performance, the Acer TravelMate 2700 is an excellent choice for small/home offices and small-to-medium businesses as well as government/educational institutions.

- Intel® Pentium® 4 Processor
- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM
- 80GB[1] hard drive
- Integrated CD-RW/DVD-ROM combo drive
- 15.4" WXGA (1280 x 800) TFT display
- ATI MOBILITY™ RADEON® 9000 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty[2]

Acer TravelMate 2702WLCi-XPP

$1,199

INTEL® PENTIUM® 4 PROCESSOR 3GHz
(1MB L2 CACHE, 800MHz FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL
(LX.T6006.206)

- 2 x 1.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 12ms response time
- Silver color

$20 PRICE CUT!

Acer AL1715smd

$249

17.0" LCD

Acer AL1715

- 17.0" TFT LCD
- 1280 x 1024 native resolution
- 500:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 12ms response time
- Black or beige color

Acer AL1715

$229

17.0" LCD

Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

acer

Acer® AcerPower™ FV
Affordable Yet Feature-Rich

The **AcerPower FV** boasts an impressive feature set in a stylish chassis at a price that won't break your budget. Ample power means you can efficiently perform everyday tasks. Multiple expansion slots make the system easy to upgrade, while the six USB 2.0 ports (two front, four back) give you the ability to connect to the latest peripherals.

- Intel® Pentium® 4 Processor
- Microsoft® Windows® XP Professional
- 256MB DDR SDRAM
- 80GB[1] SATA hard drive
- CD-ROM drive
- 1.44MB[1] floppy drive
- Integrated Intel® Graphics Media Accelerator 900
- 10/100 LAN
- One-year limited warranty[2]

AcerPower FV-U-P5050

$499

INTEL® PENTIUM® 4 PROCESSOR 505
(2.66GHz, 1MB L2 CACHE, 533MHz FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL

Card reader shown is not included on featured model.

Acer® AcerPower™ F2b
All-Around Budget Performer

Proven technology, high-level reliability and expansion options help to make the **AcerPower F2b** minitower a sound investment for home, school or office needs.

- Intel® Celeron® D Processor
- Microsoft® Windows® XP Professional
- 256MB DDR SDRAM
- 80GB[1] hard drive
- CD-ROM drive
- 1.44MB[1] floppy drive
- Intel® Extreme Graphics
- 10/100 LAN
- One-year limited warranty[2]

AcerPower S220-U-C3500

$399

INTEL® CELERON® D PROCESSOR 330
(2.66GHz, 256KB L2 CACHE, 533MHz FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL

Card reader shown is not included on featured model.

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- 15.0" TFT LCD
- 1024 x 768 native resolution
- 350:1 contrast ratio
- 140° horizontal viewing angle
- 125° vertical viewing angle
- VGA signal connector
- 250 cd/m² brightness
- 25ms response time
- Black or beige color

$20 PRICE CUT!

Acer AL1511
$169
15.0" LCD

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Acer recommends Microsoft® Windows® XP Professional.

Acer® Veriton® 7600GT
Business Productivity Tool - Minitower

The Acer Veriton 7600GT minitower, with a deep-charcoal chassis, is a superb business productivity tool that includes a powerful processor, integrated graphics, management software and room for expansion. The one-touch recovery feature easily returns the PC to its original configuration.

- Intel® Pentium® 4 Processor with HT Technology
- Microsoft® Windows® XP Professional
- 512MB DDR400 SDRAM
- 80GB[1] hard drive
- CD-RW drive
- 1.44MB[1] floppy drive
- Intel® Extreme Graphics 2
- Gigabit LAN
- Three-year limited warranty[2]

Acer Veriton 7600GT-U-P3201
$839
INTEL® PENTIUM® 4 PROCESSOR WITH HT TECHNOLOGY 3.20GHZ
(1MB L2 CACHE, 800MHZ FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL

Acer Veriton 7600GT-U-P3001
$799
INTEL® PENTIUM® 4 PROCESSOR WITH HT TECHNOLOGY 3GHZ
(1MB L2 CACHE, 800MHZ FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL

Acer® Veriton® 3600GT
Business Productivity Tool - Compact Desktop

The compact form factor of the deep-charcoal Acer Veriton 3600GT makes it the perfect desktop solution when space is at a premium.

- Intel® Pentium® 4 Processor with HT Technology
- Microsoft® Windows® XP Professional
- 512MB DDR400 SDRAM
- 80GB[1] hard drive
- CD-RW drive
- 1.44MB[1] floppy drive
- Intel® Extreme Graphics 2
- Gigabit LAN
- Three-year limited warranty[2]

Acer Veriton 3600GT-U-P3201
$839
INTEL® PENTIUM® 4 PROCESSOR WITH HT TECHNOLOGY 3.20GHZ
(1MB L2 CACHE, 800MHZ FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL

Acer Veriton 3600GT-U-P3002
$799
INTEL® PENTIUM® 4 PROCESSOR WITH HT TECHNOLOGY 3GHZ
(1MB L2 CACHE, 800MHZ FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL

Acer AC711

- 17.0" CRT
- 16.1" diagonal viewing area
- 1024 x 768 @ 85Hz recommended resolution
- 0.27mm dot pitch
- Black or beige color

Acer AC711
$109
17.0" CRT
(16.1" VIEWABLE)

GREAT VALUE!

acer
Empowering People

Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

acer

Acer® TravelMate® 4500
All-Around Business System

Suitable for both office and on-the-go use, the **Acer TravelMate 4500** strikes just the right balance between performance and mobility. Connect to workplace peripherals in one easy step with the optional EasyPort Port Replicator III. On the road, expect up to five hours of battery life (depending on configuration and usage) from this 6.5-pound notebook. And should you want to cut the weight, the modular optical drive is easily removed.

MOBILE TECHNOLOGY

Acer recommends Microsoft® Windows® XP Professional.

Up to 1GB memory and 100GB[1] hard drive

- Intel® Centrino™ Mobile Technology
  - Intel® Pentium® M Processor
  - Intel® 855GME chipset
  - Intel® PRO/Wireless 2200BG network connection
- Microsoft® Windows® XP Professional
- Modular DVD-Dual drive (DVD+/-RW)
- 15.0" XGA (1024 x 768) TFT display
- Intel® 855GME chipset with integrated graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty[2]

Acer TravelMate 4504LMi

$1,499

INTEL® PENTIUM® M PROCESSOR 745
(1.80GHz, 2MB L2 CACHE, 400MHz FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL
1GB DDR333 SDRAM AND 100GB[1] HARD DRIVE
(LX.T5106.112)

Acer TravelMate 4502LMi

$1,199

INTEL® PENTIUM® M PROCESSOR 725
(1.60GHz, 2MB L2 CACHE, 400MHz FSB)
MICROSOFT® WINDOWS® XP PROFESSIONAL
512MB DDR333 SDRAM AND 80GB[1] HARD DRIVE
(LX.T5106.109)

Acer Notebook/Tablet Service Upgrades Protect Your Valuable Investment

Quality is built into every notebook and Tablet PC Acer makes, and each comes with a one-year standard limited warranty.[2] It includes 24/7 (excluding some holidays) hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. Extra protection is available with one of these upgrades:

It's a tough world out there, and accidents do happen—sticky spills, dangerous drops, nasty knocks—which is why you should consider the Total Protection Upgrade. It runs concurrently with the limited warranty and limited warranty extension and covers the cost of a replacement unit if your covered notebook cannot be repaired.

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Excludes extension of International Traveler's Warranty.

2-Year Extension of Limited Warranty + 3-Year Total Protection Upgrade (146.AD077.002)

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Prepays freight to and from Acer repair depot.
Excludes Extension of International Traveler's Warranty.

[1] When referring to storage capacity, GB stands for one billion bytes and MB stands for one million bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.

[2] For a free copy of the standard limited warranty end-users should see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76503.

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800-571-2237

www.acer.com/us

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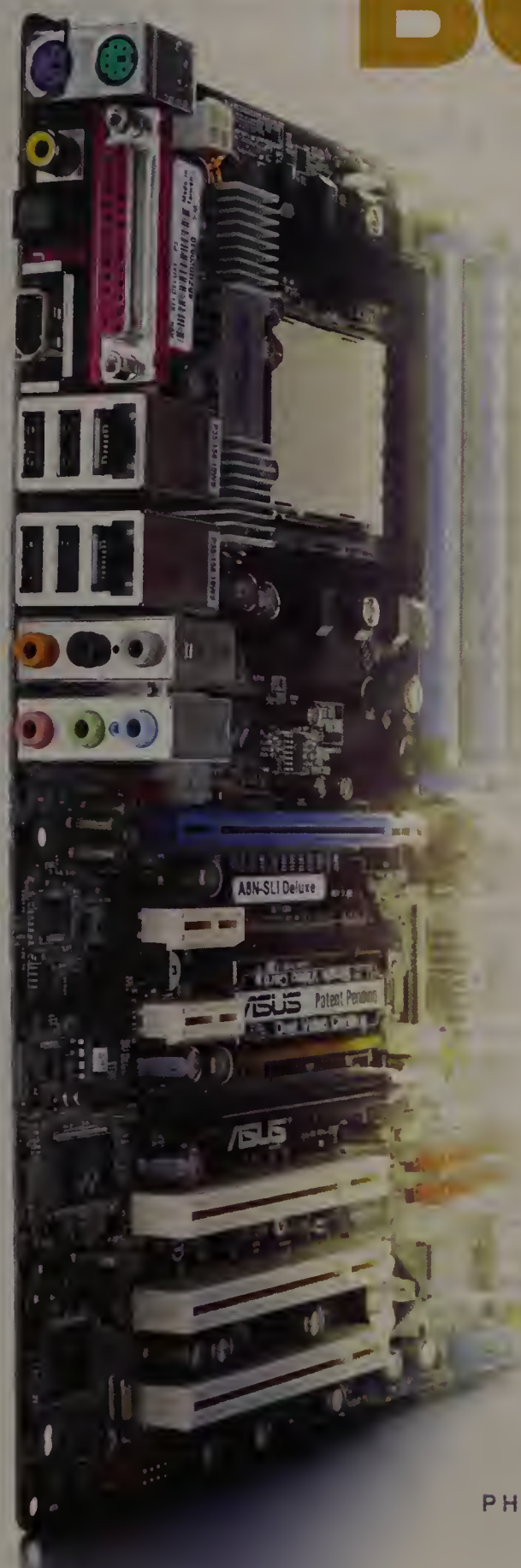
BATTLE OF THE BOARDS



A PC is only as good as its motherboard.

Our lab tests of PCI Express models will help you find the right one—whether you're building a system from scratch or upgrading the machine you've got.

TECHIES AND PC GAMERS routinely soup up their systems to maximize performance and appearance. My own computer has been refurbished so many times that I ▶

BY JON L. JACOBI

PHOTOGRAPHS BY JOHN KUCZALA

can't even remember when I bought the case.

But at the heart of every home-built PC or system rebuild is a motherboard, and choosing the right one can be difficult. Most of the boards are built around a small number of chip sets, resulting in similar designs that can be hard to differentiate. But the details of motherboard design—the connectors the board comes with, the firmware the manufacturer uses, and even the physical layout of components—are important considerations.

The details of board design are important to consider.

To help you find the best centerpiece for your machine, *PC World* road-tested 14 state-of-the-art boards for Athlon 64 and Pentium 4 CPUs. Thanks to NVidia's NForce4 chip sets and some new competing chip sets from ATI and Via, PCI Express graphics technology is finally available on both AMD and Intel platforms. That let us select boards with all the technologies you'll need to keep your PC up-to-date: PCI Express (PCIe) graphics, Scalable Link Interface (SLI) graphics, 3-gigabits-per-

FEATURES COMPARISON

TEST Center

Athlon 64 and Pentium 4 Motherboards

PERFORMANCE NUMBERS WERE CLOSE, but the Athlon 64 boards come out ahead in price and features.

	ATHLON 64 BOARD	Features and specifications [1]		Performance [2]	Bottom line
1	Asus A8N-SLI Deluxe Best BUY $185 (★★★★½) find.pcworld.com/47196	• NVidia NForce4 SLI chip set • 2 PCIe x16, 2 PCIe x1, 3 PCI slots • 8 Serial ATA-300, 2 Parallel ATA-133 ports	• 4 USB 2.0, 1 FireWire ports • 2 gigabit LAN ports • RAID 0, 1, 0+1, 5, 10 support	• WorldBench 5 score: 105 • Design: Very Good • Usability: Very Good	Power user's board packs almost every port you could want into a sensible layout; has exceptional documentation.
2	Asus A8V-E Deluxe $145 (★★★★) find.pcworld.com/471B4	• Via KBTB90 chip set • 1 PCIe x16, 2 PCIe x1, 3 PCI slots • 2 Serial ATA-150, 2 Parallel ATA-133 ports	• 4 USB 2.0, 1 FireWire ports • 1 gigabit LAN port; 802.11g • RAID 0, 1 support	• WorldBench 5 score: 102 • Design: Good • Usability: Very Good	Included wireless networking helps make this board, which uses Via's K8T890 chip set, an outstanding value for midrange PCs.
3	Epox EP-9NPA+ Ultra $150 (★★★★☆) find.pcworld.com/47186	• NVidia NForce4 Ultra chip set • 1 PCIe x16, 3 PCIe x1, 3 PCI slots • 4 Serial ATA-300, 2 Parallel ATA-133 ports	• 4 USB 2.0 ports [3] • 1 gigabit LAN port • RAID 0, 1, 0+1 support	• WorldBench 5 score: 104 • Design: Very Good • Usability: Good	Epox's NForce4 Ultra board performs well and has the basic features you need for a mainstream to high-end system.
4	MSI K8N Neo4 Platinum/SLI $190 (★★★★) find.pcworld.com/47210	• NVidia NForce4 SLI chip set • 2 PCIe x16 SLI, 3 PCI slots • 6 Serial ATA-300, 2 Parallel ATA-133 ports	• 4 USB 2.0, 1 FireWire ports • 2 gigabit LAN ports • RAID 0, 1, 0+1 support	• WorldBench 5 score: 105 • Design: Good • Usability: Good	This was the fastest board we tested, as reflected in its great gaming scores, but it suffers a bit from a difficult component layout.
5	Gigabyte GA-K8NXP-SLI $195 (★★★★☆) find.pcworld.com/471BB	• NVidia NForce4 SLI chip set • 2 PCIe x16 SLI, 2 PCIe x1, 2 PCI slots • 4 Serial ATA-300, 4 Serial ATA-150, 2 Parallel ATA-133 ports	• 4 USB 2.0, 1 FireWire ports • 2 gigabit LAN ports; B02.11g • RAID 0, 1, 0+1 support	• WorldBench 5 score: 102 • Design: Very Good • Usability: Good	Gigabyte's capable SLI board is another good choice for power users, but it trails the Asus A8N-SLI Deluxe in performance.
	PENTIUM 4 BOARD				
1	Asus P5AD2-E Premium $225 (★★★★) find.pcworld.com/47202	• Intel 925XE chip set • 1 PCIe x16, 2 PCIe x1, 3 PCI slots • 4 Serial ATA-300, 4 Serial ATA-150, 2 Parallel ATA-133, 1 Parallel ATA-100 ports	• 4 USB 2.0, 1 FireWire B00 ports • 1 gigabit, 1 10/100 LAN ports; B02.11g • RAID 0, 1, 0+1, 5, 10 support	• WorldBench 5 score: 102 • Design: Very Good • Usability: Good	The P5AD2-E's overclocking controls aren't as precise as those on some other boards, but it's well-designed and has a fine manual.
2	Abit Fatal1ty AA8XE Best BUY $235 (★★★★☆) find.pcworld.com/4719B	• Intel 925XE chip set • 1 PCIe x16, 2 PCIe x1, 2 PCI slots • 4 Serial ATA-150, 1 Parallel ATA-100 ports	• 2 USB 2.0, 1 FireWire ports • 1 gigabit, 1 10/100 LAN ports • RAID 0, 1 support	• WorldBench 5 score: 100 • Design: Very Good • Usability: Very Good	The stylish and loaded Fatal1ty AA8XE is packed with extra cooling components and includes tons of overclocking options.
3	Intel D915PBL $145 (★★★★) find.pcworld.com/47204	• Intel 915P chip set • 1 PCIe x16, 2 PCIe x1, 4 PCI slots • 4 Serial ATA-150, 1 Parallel ATA-100 ports	• 4 USB 2.0, 1 FireWire ports • 1 gigabit LAN port • RAID 0, 1, 0+1 support	• WorldBench 5 score: 100 • Design: Good • Usability: Very Good	Midrange board doesn't have many overclocking options or special features, but it's a good mainstream value.
4	Gigabyte GA-8AENXP-D $240 (★★★½☆) find.pcworld.com/47206	• Intel 925XE chip set • 1 PCIe x16, 2 PCIe x1, 2 PCI slots • 8 Serial ATA-150, 1 Parallel ATA-100 ports	• 4 USB 2.0 ports [3] • 2 gigabit LAN ports • RAID 0, 1, 0+1 support	• WorldBench 5 score: 101 • Design: Very Good • Usability: Good	Colorful, high-performance board has good documentation and comes with every cable and break-out connector you'll need.
5	DFI LANParty 925X-T2 $210 (★★★½) find.pcworld.com/4720B	• Intel 925XE chip set • 1 PCIe x16, 2 PCIe x1, 3 PCI slots • 4 Serial ATA-150, 1 Parallel ATA-100 ports	• 6 USB 2.0 ports [3] • 2 gigabit LAN ports • RAID 0, 1, 0+1 support	• WorldBench 5 score: 99 • Design: Good • Usability: Good	This colorful and full-featured board was designed for cases with side windows for showing off the components.

[1] Features listings are not exhaustive. FireWire and USB port numbers refer only to externally accessible ports, except where noted. [2] All motherboards were tested with the same peripheral components, including a 300GB SATA hard drive and a Leadtek WinFast PX6B00 TDH PCI Express graphics card. AMD boards were tested with a 2.4-GHz Athlon 64 400+ processor and 1GB of DDR400 memory. Intel boards were tested with a 3.8-GHz Pentium 4 570J CPU and 1GB of 533-MHz DDR2 memory. [3] Includes headers for one or more FireWire ports.

second Serial ATA (SATA II), and gigabit ethernet.

To make sure that we evaluated all boards on an equal footing, we outfitted each one with the same supporting hardware whenever possible. We selected similarly priced CPUs—a 2.4-GHz Athlon 64 4000+ chip and a 3.8-GHz Pentium 4 570J CPU—for our test setups. All of the Athlon boards were tested with 1GB of DDR400 memory, while the Pentium 4 boards were configured with 1GB of 533-MHz DDR2. Newegg.com, a popular online store for PC gear, lent us the cases, power supplies, hard drives, and memory we used for testing.

The result was a field day for the PC World Test Center—it's not every day that we can get this granular with the guts of a PC. We didn't see large performance differences among the boards, but some patterns did emerge. The Athlon setups performed slightly better and had more features as a group than their P4 counterparts, and the average price of the Athlon boards was lower. Though we tested boards built around several different chip sets, our WorldBench 5 and gaming tests revealed no significant performance differences along those lines.

For most mainstream applications, any of the motherboards we tested will perform well enough, but if you want a closer look at the test results, consult our gaming and multitasking test reports on pages 102 and 110, respectively.

If you're ready to roll up your sleeves and get your hands dirty under your PC's hood, read on.

Best BUY Asus's $185 A8N-SLI Deluxe

Asus's $145 A8V-E Deluxe

Epox's $150 EP-9NPA+ Ultra

Athlon 64

OVERALL, THE ATHLON 64 boards impressed us with their clean layouts, rock-solid stability, and rich feature sets—especially the NForce4 units. On average, the Athlon motherboards are about $35 cheaper than their Pentium 4 rivals—a prime consideration when it comes time to hit the parts store.

TIP>> *All of the Athlon 64 boards we gathered for this roundup utilize AMD's latest socket 939. The company's 64-bit CPU comes in other pin-count flavors as well: socket 754 for less-expensive, single-memory-channel Athlon 64 processors, and socket 940 for the Athlon 64 FX-51 and AMD Opteron server CPUs. However, socket 939 is the best choice for mainstream machines.*

An NForce4 SLI board, MSI's $190 K8N Neo4 Platinum/SLI, turned in the best scores overall on our performance tests, with a great showing in WorldBench 5 and even better results in our gaming tests. NVidia's feature-rich NForce4 SLI chip set was the centerpiece of this and several of the other SLI-equipped AMD motherboards in our roundup. We didn't test the SLI boards in their dual-graphics mode, which lets you dramatically boost performance in some games by installing a second graphics board. TIP>> *For more on the performance benefits of SLI, see find.pcworld.com/47242.*

Like other NForce4 boards, the K8N Neo4 Platinum/SLI offers an integrated gigabit ethernet port and SATA II support. The newer SATA standard raises the maximum transfer rate from 150 megabytes per second to 300 MBps. We haven't yet tested a SATA drive that supports the new standard, but SATA II support might prove to be a useful bit of future-proofing for when those drives arrive.

MSI's K8N Neo4 Platinum/SLI is sedately attractive, with dashes of color here and there, and has a generally logical and well-spaced layout. MSI's documentation is adequate, though it can be a little convoluted. The trio of Windows utilities that ships with the board—MSI Core, NVidia's NTune, and MSI Live Update 3—does a fine job of letting you monitor the hardware, overclock CPU and bus speeds, and update the system's BIOS and drivers.

Unfortunately, the MSI board was the only one on our features chart that lacked a PCIe x1 slot. There's a dearth of PCIe x1 cards right now—we found only a few modems and LAN cards—but not having the slot could eventually prove annoying. That and a couple of other design quirks kept us from giving the MSI board a higher star rating.

For example, like several of the other boards we tested, MSI's board has a few tall, easily bendable capacitors that sit uncomfortably close to the CPU socket. Those capacitors and other components around the CPU socket prevent the installation of some third-party heat sinks. TIP>> *If you're buying a big heat sink for your CPU, check with the manufacturer to make sure it will fit your motherboard.*

Another NForce4 SLI board, Asus's $185 A8N-SLI Deluxe, took home our Best Buy on the Athlon side. It tied for the top spot in our WorldBench 5 tests, though it lagged a bit in the gaming trials. The board comes with a whopping eight SATA II connectors, two gigabit ethernet ports, and an unusually large software bundle that includes InterVideo's WinDVD Creator Suite (other Asus boards have this as well). Excellent documentation, along with the PC Probe monitoring software and Live Update BIOS updating software that accompany the other Asus boards, rounds out the deal.

The A8N shares an unusual feature with the

PHOTOGRAPHS: RICK RIZNER

JEFFREY STEPHENSON: HUMIDOR CL SERVER PROJECT

Converting a humidor into a computer turned this hobbyist into a case mod icon. What's your vision? Go to Newegg.com to find everything the world's most artful modders are running.

System Specs:

- 40GB Toshiba 2.5" drive
- Twin Linksys antennas
- ATX power control
- 256MB of DDR memory
- 40mm CPU fan
- 4 port wireless DSL router

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Pentium®4 570J 3.8 GHz 800MHz FSB
Hyper Threading Technology

FOXCONN

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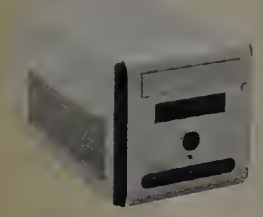
925A01-8EKRS2 925X
Chipset Motherboard for Intel®



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XC Cube Metropolitan
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Dual Channel Kit 1GB (512MBx2)
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LINKSYS

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Model# WPC54G

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Model# RD-162

ATI

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RADEON X800 XT Video Card 8X AGP

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R911E 19"
TFT Active Matrix LCD 1280 x 1024

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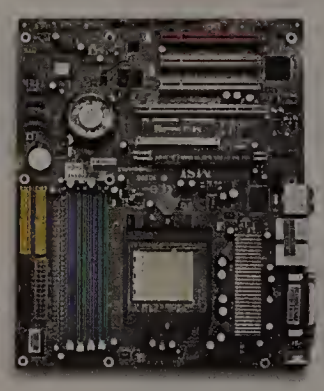
ONCE YOU KNOW, YOU NEWEGG.

other Asus boards in this review: spoken POST codes. POST codes are meant to help you diagnose problems with your PC, such as bad memory, or an improperly connected video card. Normally they're a series of beeps or a number on an integrated LED that you have to look up in your manual. But thanks to an integrated speech controller, the Asus boards use your system speaker to tell you in plain language what the problem is (or which stage of the boot process caused the problem).

The other Asus Athlon board we tested—the $145 A8V-E Deluxe—used Via's new K8T890 chip set, which turned out to be an adequate performer, producing WorldBench 5 and gaming scores right in line with the competition. The A8V-E Deluxe fell a bit short of its NForce4 counterparts in terms of SATA and RAID support, offering only two SATA ports and RAID 0 and RAID 1. What the board lacks in drive support, however, it makes up for in networking, with an integrated 802.11g wireless adapter in addition to its gigabit ethernet port. It even includes a table-top external antenna.

We had no other complaints about the board—especially since it's nearly as fast as (and about $50 cheaper than) its NForce4 rivals, and its layout was one of our favorites among the Athlon 64 products.



MSI's $190 K8N Neo4 Platinum/SLI

The PCIe x16 slot is mounted in the second slot position, to eliminate interference with the DIMM slots and to make room for a PCIe x1 slot on the right. TIP>> *Many high-end and midrange graphics boards use fans large enough to prevent you from installing an expansion card in the adjacent slot. Plan accordingly when you're shopping for components.*

Not all the NForce boards were loaded SLI models. Epox's $150 EP-9NPA+ Ultra uses the NForce4 Ultra chip set, which supports similar features but omits support for the second graphics board necessary for SLI. The EP-9NPA+ is the prototypical NForce4 Ultra board, implementing exactly what the chip set offers—quite a lot, but nothing more.

The board's performance was middle-of-the-road among the Athlon 64 motherboards in both WorldBench 5 and our gaming tests. You can optimize for more speed via its broad range of overclocking settings (in the PC setup program) and the speed and voltage settings (in the included NTune app).

The EP-9NPA+ Ultra features the cleanest layout of all the Athlon 64 boards, with three unobstructed PCIe x1 slots and no interference between components. While we would have liked a rear-panel FireWire port, the board came with two FireWire headers—a set of pins that lets you connect to ▶

TEST REPORT

Athlons Dominate Our Gaming Tests

TODAY'S GAMES are typically played at resolutions of 1024 by 768 pixels and higher, but at those resolutions, the graphics board's processor does the bulk of the work. We ran our frame-rate tests at 640 by 480 and at 800 by 600 in order to keep the workload on the motherboard, CPU, and RAM.

Thanks to a slightly faster CPU, the average for Athlon 64 motherboards was higher than the average for our tested Pentium 4 boards, by a significant 8 percent. The standout Athlon 64 board was the MSI K8N Neo4 Platinum/SLI which bested the average Athlon 64 board by nearly 7 percent.

The spread was narrower among Pentium 4 boards, where the slowest, Abit's Fatal1ty AA8XE (named after a successful pro gamer), finished a scant 4 percent behind the leader. But then, that board was meant to be overclocked, and we don't test overclockability since results can vary between different samples of a given board, and finding stable settings can be a time-consuming endeavor.

ATHLON 64 BOARD	Doom 3[1] Faster	Far Cry[2] Faster
Asus A8N-SLI Deluxe	103.0	135.0
Asus A8V-E Deluxe	102.7	129.6
Epox EP-9NPA+ Ultra	104.1	129.5
Gigabyte GA-K8NXP-SLI	103.4	127.5
MSI K8N Neo4 Platinum/SLI	109.6	142.7
PENTIUM 4 BOARD		
Abit Fatal1ty AA8XE	88.7	126.5
Asus P5AD2-E Premium	88.2	128.7
DFI LANParty 925X-T2	89.9	129.6
Gigabyte GA-8AENXP-D	91.0	133.0
Intel D195PBL	89.9	128.5

TEST Center [1]Results are in frames per second at 640-by-480-pixel resolution. Higher numbers are better. [2]Results are in frames per second at 800-by-600-pixel resolution. Higher numbers are better.

PHOTOGRAPH: RICK RIZNER

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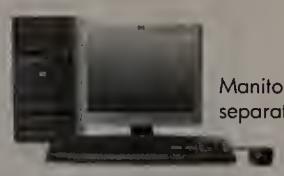

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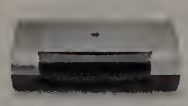

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The Epox board's Magic Flash Internet BIOS utility worked well, and the preproduction user guide we received was concise and informative.

Rounding out our Athlon top five is Gigabyte's $195 GA-K8NXP-SLI, the most expensive of the Athlon 64 boards we examined. It provides several extra features calculated to ease the pain of its high price, including a wireless 802.11g adapter and an extra RAID controller that adds four more SATA ports as well as support for introducing a second RAID array. Several of the motherboards we tested augment their SATA setups in this fashion.

The GA-K8NXP-SLI's performance wasn't impressive compared with that of the other Athlon boards we tested, but its build quality did show some exceptional attention to detail. We particularly liked the four walled SATA ports (the other four ports were normal), which make for a bit firmer connection. Overclockers will also appreciate the numerous BIOS speed adjustments, the powerful EasyTune5 monitoring and overclocking software, and the beefy Voltage Regulator slot and module.

Gigabyte's $195 GA-K8NXP-SLI

We tested two other Athlon boards, but they failed to make our chart. Chaintech's $130 VNF4/Ultra, another NForce4 Ultra board, performed well enough, but it was the only product we tested that lacked FireWire support completely, and its sparse documentation and poor labeling of components made setup more difficult than necessary.

MSI's $135 RS480M2-IL just missed our chart as well. It was the only board we tested that carried ATI's PCIe Athlon 64 chip set, the Radeon Xpress 200. Designed to power inexpensive systems, the RS480M2-IL performed decently in most ways, especially in the gaming tests. However, it ▶

TECH PRIMER

New Motherboard Tech

SOME INCREDIBLY EXCITING technologies are in place or headed for a motherboard near you. Here are a few of them.

SLI

What It Is: SLI, or Scalable Link Interface, is NVidia's interface for hooking up two PCIe x16 graphics cards in tandem.

Why you want it: It gives you exceptional performance at high resolutions in the games that support it.

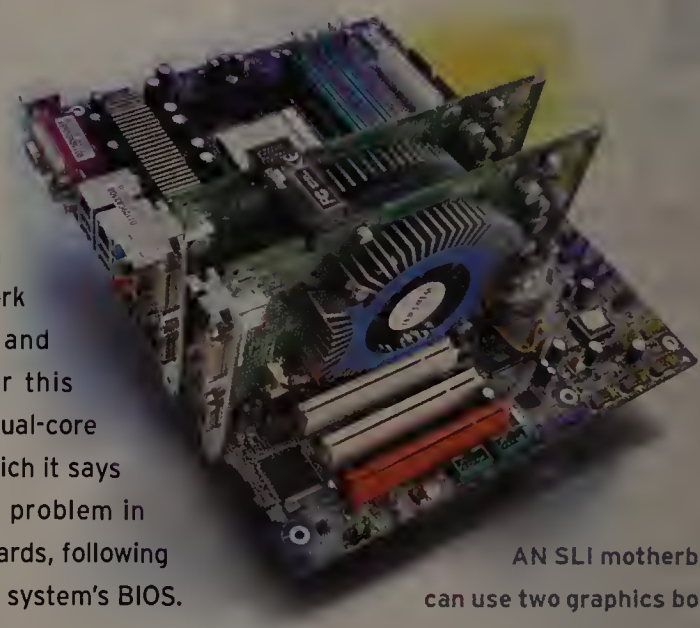
What supports it: Currently, only motherboards based on NVidia's NForce4 SLI Athlon 64 chip set support SLI, but an Intel-based option should appear later this year. See find.pcworld.com/47506 for a list of compatible graphics boards.

Dual-Core/Multi-Core

What It Is: Whatever the name, it's like having two processors on the same chip.

Why you want it: These chips provide smoother multitasking performance and promise to accelerate software that supports symmetrical multiprocessing.

What supports it: Intel is already shipping dual-core Pentium D chips designed to work with its coming 955X and 945G chip sets. Later this year AMD will ship its dual-core "Toledo" Athlon 64, which it says will operate without a problem in existing socket 939 boards, following a simple upgrade of the system's BIOS.



AN SLI motherboard can use two graphics boards to boost the speed of PC games.

64-Bit CPUs

What they are: The 64-bit desktop CPUs, like AMD's Athlon 64 and Intel's impending EM64T Pentiums, add 64-bit-wide data paths and registers to an existing 32-bit architecture, to handle 32-bit and 64-bit software with equal aplomb.

Why you want it: New 64-bit software will allow bigger numbers, larger files, and more addressable memory. It should also run faster when it has been optimized to take advantage of the extra registers and wider data paths on 64-bit CPUs.

What supports it: AMD's 64-bit Athlon 64 CPUs—and motherboards capable of supporting them—have been out on the market for more than a year now. Meanwhile, Intel's EMT64-enabled processors should be shipping by the time you read this. To run 64-bit software, you will also need to have a 64-bit OS such as Linux or Windows XP Professional X64; these OSs should be available in the second quarter of 2005. XP Pro X64 will run on either AMD's or Intel's 64-bit processors.

PHOTOGRAPHS: (TOP) RICK RIZNER; (BOTTOM) JOHN KUCZALA

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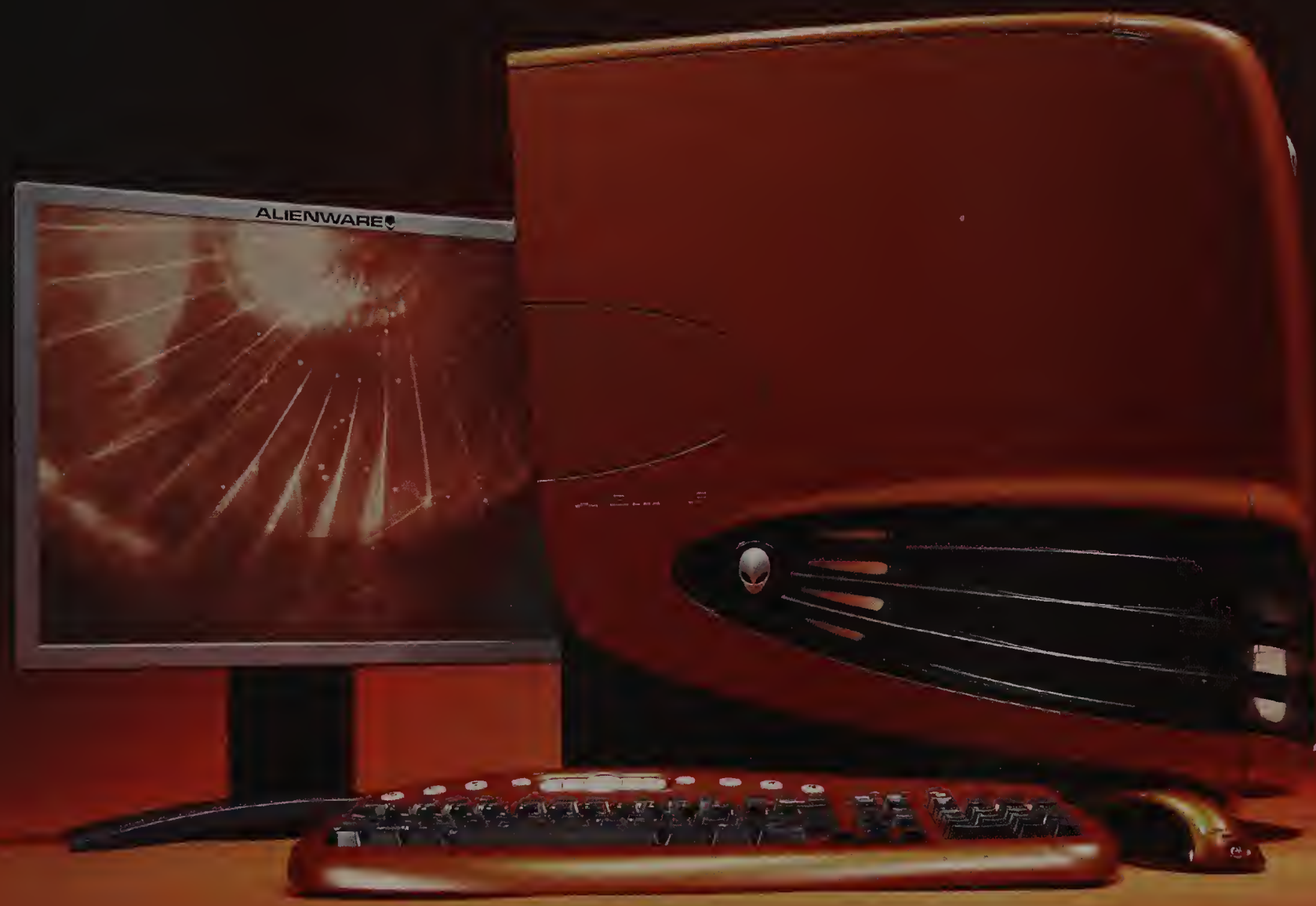

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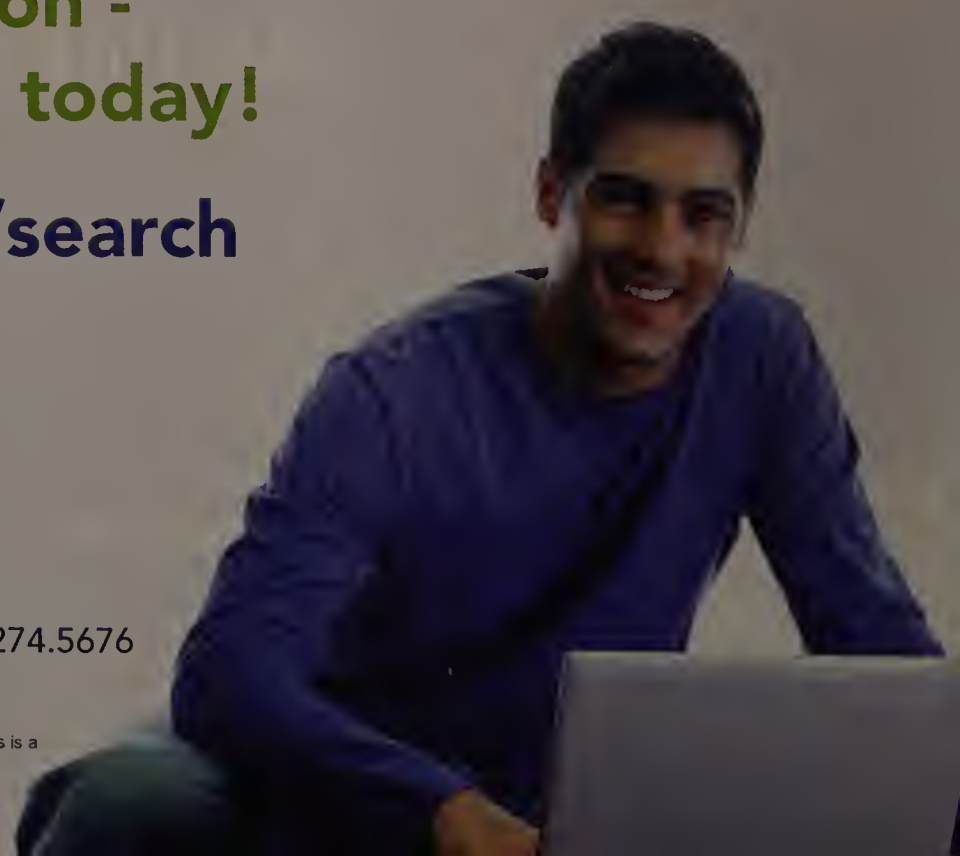

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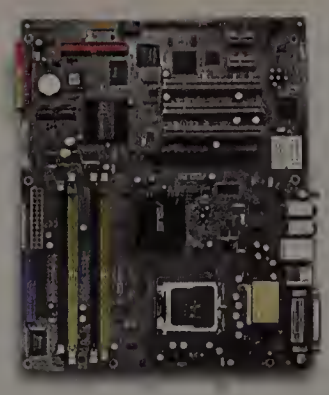
lagged in the disk-intensive sections of WorldBench 5, it felt a bit sluggish in our hands-on evaluation, and it lacked the PCIe x1 slots and gigabit ethernet ports included on the NForce4 boards.

Pentium 4

FEATURE FOR FEATURE, the Pentium 4 motherboards didn't quite stack up to their less-expensive Athlon 64 counterparts, and the P4 setups' performance lagged slightly behind that of the Athlons. Still, those differences were small, and many of the P4 boards offered an impressive package.

All of our Pentium 4 setups use Intel's new high-end socket LGA775, which already supports DDR2 memory and will support the upcoming dual-core Pentium 4 CPUs, as well as the 64-bit-enabled Pentiums discussed in this month's *News and Trends* section on page 20. (For more on dual-core Pentiums, see "New Motherboard Tech," on page 106.)

TIP>> *If you've built PCs before, socket LGA775 CPUs may surprise you initially because they have no pins. Don't worry—they aren't supposed to. Intel's new CPUs use little gold contacts on the bottom of the chip that press up against tiny metal balls in the socket.*



Asus's $225 P5AD2-E Premium

Best BUY Abit's $235 Fatal1ty AA8XE

Abit's $235 Fatal1ty AA8XE easily won our "sexiest motherboard in the review" prize and narrowly edged Asus's $225 P5AD2-E Premium for our P4 Best Buy. With its bright red color, sleek auxiliary fans and ducting, and numerous LEDs (on top and bottom), it's quite a sight—especially in the dark. Based on Intel's 925XE chip set, the board is packed with overclocking settings and features.

Time constraints prevented us from putting the board through its born-to-overclock paces, but at its default settings, the Fatal1ty turned in mediocre scores in both WorldBench 5 and our gaming tests. However, its extra fans for processor and memory cooling should help make up the difference.

Abit provides detailed, well-illustrated documentation for this board and includes its UGuru Windows software for overclocking and FlashMenu for updating the BIOS over the Internet. An on-board digital readout tells you exactly where you are in the boot process—a handy troubleshooting tool.

The most scattershot performance of the entire review was turned in by another 925XE board, Asus's $225 P5AD2-E Premium. Though it was the fastest Pentium 4 board in our WorldBench 5 tests, it didn't distinguish itself in the gaming tests. Go figure. Nevertheless, its features are consis- ▶

TEST REPORT

NForce4 Setups Perform Best in Multitasking

ATHLON 64 BOARD	Chip set	Mozilla and Windows Media Encoder test[1]
Asus A8N-SLI Deluxe	NVidia NForce4 SLI	597
Asus A8V-E Deluxe	Via K8T890	629
Epox EP-9NPA+ Ultra	NVidia NForce4 Ultra	610
Gigabyte GA-K8NXP-SLI	NVidia NForce4 SLI	611
MSI K8N Neo4 Platinum/SLI	NVidia NForce4 SLI	580
PENTIUM 4 BOARD		
Abit Fatal1ty AA8XE	Intel 925XE	632
Asus P5AD2-E Premium	Intel 925XE	600
DFI LANParty 925X-T2	Intel 925XE	632
Gigabyte GA-8AENXP-D	Intel 925XE	613
Intel D195PBL	Intel 915P	642

TEST Center [1]Results are in seconds. Lower numbers are better.

WORLDBENCH 5 DOES a great job of measuring the performance of an entire PC system—not just a single component—on a wide range of common computing tasks. For this story, we kept all of the peripheral components the same, in order to isolate the motherboard's performance. We saw fairly uniform results on most sections of the test, except in the multitasking section, which features simultaneous Mozilla Web browsing and Windows Media Encoding. There we found more-significant differences, including an 8 percent spread between the first- and last-place Athlon boards, MSI's K8N Neo4 Platinum/SLI and Asus's A8V-E Deluxe. The Asus has a Via chip set, while the top finishers all have one of NVidia's NForce4 chip sets.

The Intel Pentium 4 boards also registered a 7 percent spread between the top-dog Asus P5AD2-E Premium and the tail-end Intel D195PBL in the multitasking section. Some 925XE-based boards ended up near the bottom of the pack as well.

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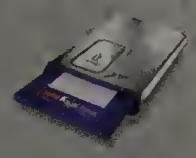

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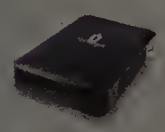

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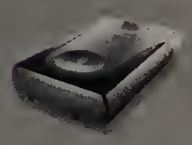

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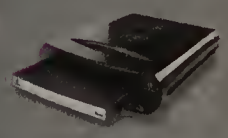

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tently excellent for a Pentium 4 board. Along with integrated 802.11g wireless, it offers two SATA RAID controllers as well as ATA-133 RAID. Asus added an IDE RAID controller to the Fatal1ty to augment the 925 and 915 chip sets' paltry single-channel ATA-100 implementation.

The P5AD2-E Premium has one layout quirk we aren't sure we like—an IDE connector that faces toward the front of the PC case, instead of straight up out of the board. That type of connector can allow for easier cable routing in some PC cases, but it can be hard to reach in others. Abit's Fatal1ty and a couple of boards from DFI also used this setup.

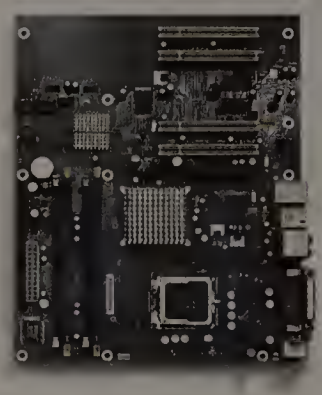
TIP>> *When you're putting your PC together, spend some extra time routing and tying cables out of the way of the airflow in your case. You'll achieve a cleaner look and keep as much air as possible flowing to cool your processor and sensitive components.*

Asus's first-rate documentation, a large software bundle, and excellent Windows utilities put the finishing touches on a very nice package.

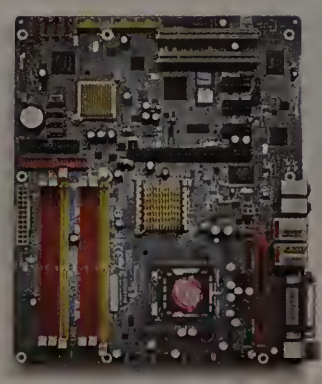
Gigabyte's $240, feature-laden, 925XE-based GA-8AENXP-D warmed our hearts as the sole board in the roundup to offer 800-Mbps FireWire 800. Other neat touches include eight SATA ports, an additional RAID controller to augment the one in the 925XE chip set, and the company's DualBIOS, which provides a backup BIOS in case you interrupt a flash or screw up the settings in the main BIOS and can't boot. Gigabyte rounds out the package with an 802.11g wireless LAN adapter card and a solid voltage regulator module for stability.

Another strength of the GA-8AENXP-D is performance. The board edged out Intel's D915PBL for first-place in the P4 gaming tests and also beat it by a point in WorldBench 5. Add good documentation, a decent range of overclocking settings, and capable Windows-based tweaking utilities, and you have a very nice Pentium 4 setup—almost nice enough to make us forget its high-end street price.

We tested Intel's $220 D925XECV2 and $145 D915PBL boards. The two differ primarily in their chip sets: The more expensive D925XECV2 uses Intel's 925XE, which supports a 1066-MHz front-side bus, while the other board's 915P chip set has a maximum bus speed of 800 MHz. But the performance difference between the two boards was tiny, making the less-expensive D915PBL a better value for most people and vaulting it onto to our chart.



Intel's $145 D915PBL



Gigabyte's $240 GA-8AENXP-D

DFI's $210 LANParty 925X-T2

The Intel boards were the prototypes for the rest of the Pentium 4 crew in terms of I/O features, implementing what the 925 and 915 chip sets provide: one ATA-100 channel, RAID 0 and 1 on the four SATA ports, eight USB ports (four external), and a gigabit ethernet port. Their layout tends toward spaciousness, with easy-to-read labels, but the area around the PCIe x16 slot can get cramped.

Surprisingly enough, Intel provides decent overclocking tweaks, though they're called "burn in" settings in both the BIOS and the company's slick Windows-based Desktop Control Center. Annoyingly, the latter doesn't ship with the boards; before you can download the software, you must answer some intrusive questions at Intel's site. Intel is also the only vendor other than Asus to bundle non-utility software with its boards; InterVideo's Home Theater Silver and WinDVD Creator Suite and NTI's CD-Maker are the featured titles.

DFI's colorful $210 LANParty 925X-T2 takes fifth place on our Pentium 4 chart, with unimpressive WorldBench 5 performance but decent results in our gaming tests. The 925X-T2 ships with a handy 5.25-inch, bay-mounted breakout box that puts a diagnostic LED up front and includes USB, FireWire, audio, and SATA ports. Our major gripe with DFI boards is their software: There are plenty of BIOS settings for overclocking, but no Windows-based utility, and the BIOS upgrade app lacks the helpful Internet connectivity found in utilities such as Asus's Live Update and Abit's FlashMenu.

A second DFI board, the $155 UT LANParty 915P-T12, just missed our chart but offered an intriguing option: support for DDR and DDR2 memory. The 915P-T12 has two DDR2 slots and two DDR slots. Though you can't use both memory types at once, you might be able to start your new system off with DDR memory recycled from your old system, and then upgrade later. Unfortunately, the 915P-T12 was the only board to lack RAID support of any kind. That's a no-no in these days of inexpensive, superintegrated motherboards. ■

Jon L. Jacobi is a technology writer in San Francisco.

RESOURCES

What's the Next Step?

ONCE YOU'VE got the perfect motherboard picked out, it's time to start finding components for your new or upgraded PC. For more advice on what to choose and how to put it all together, see "Your Ideal PC" at find.pcworld.com/47476. And for continuing coverage of all things related to PC building, see Tom Mainelli's *GeekTech* column at find.pcworld.com/47508.

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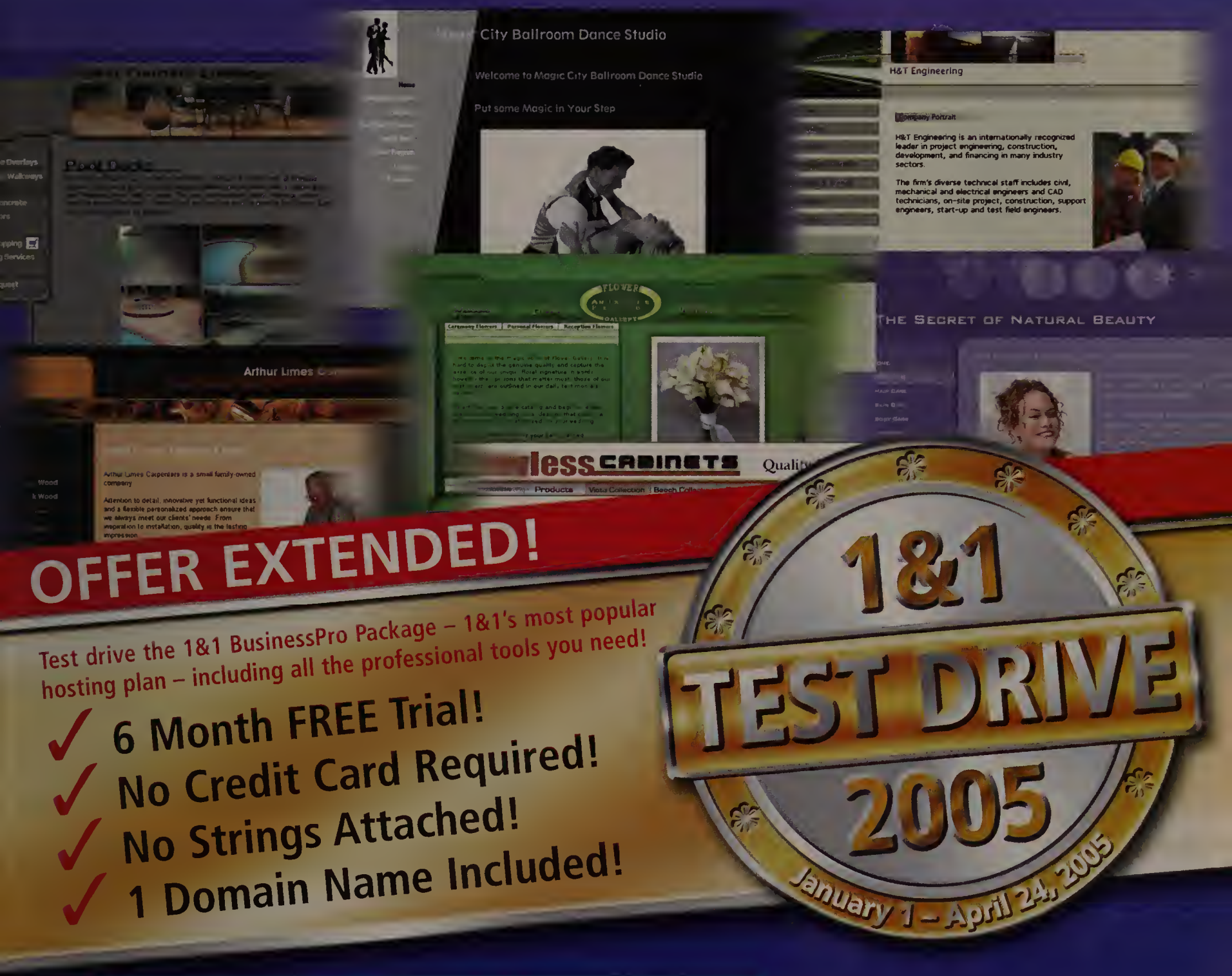

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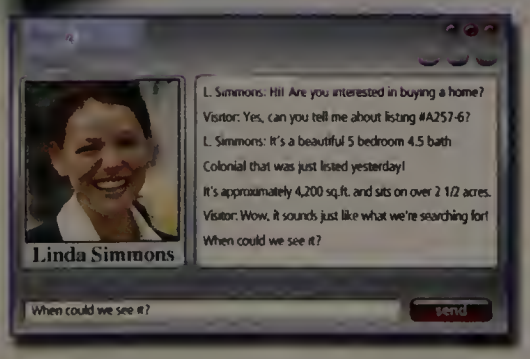

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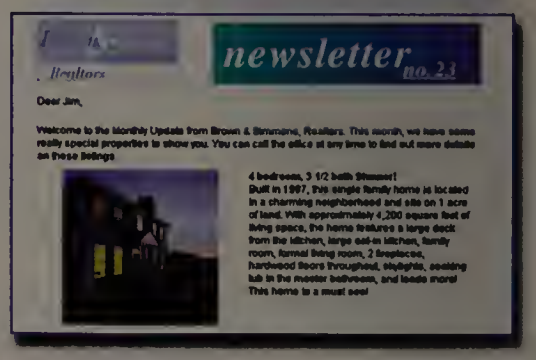

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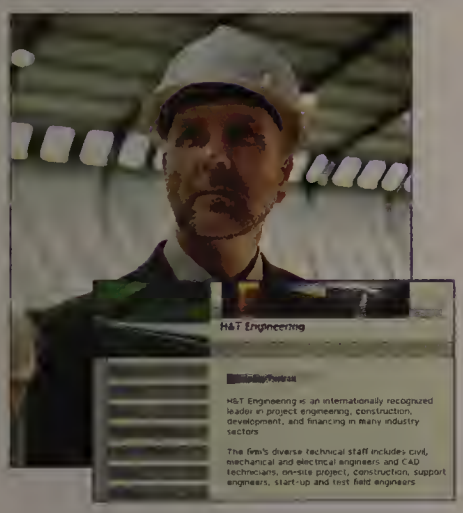

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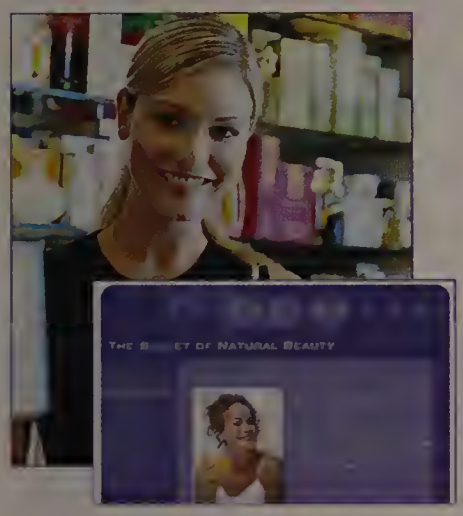
Bruce Zachary, Engineer



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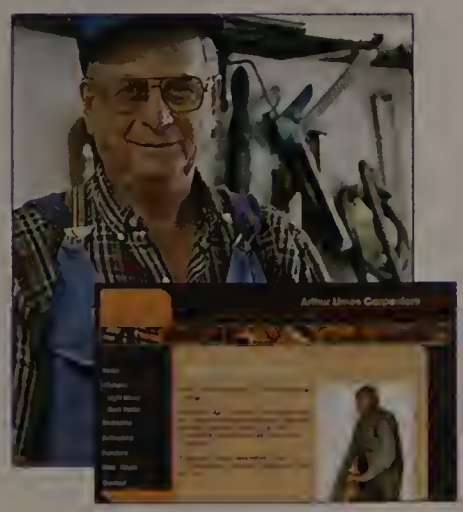

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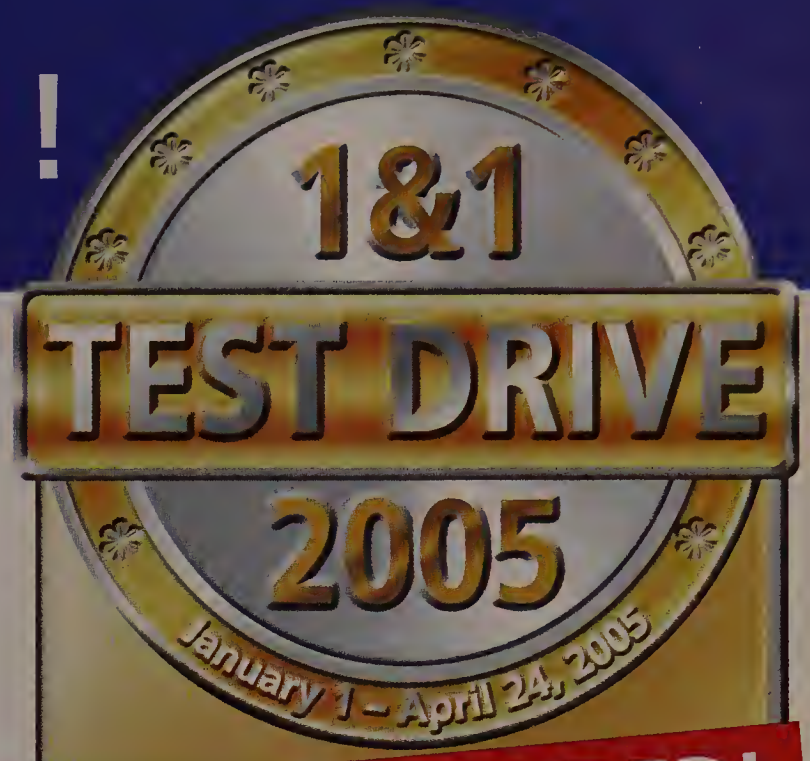
Arthur Limes, Carpenter



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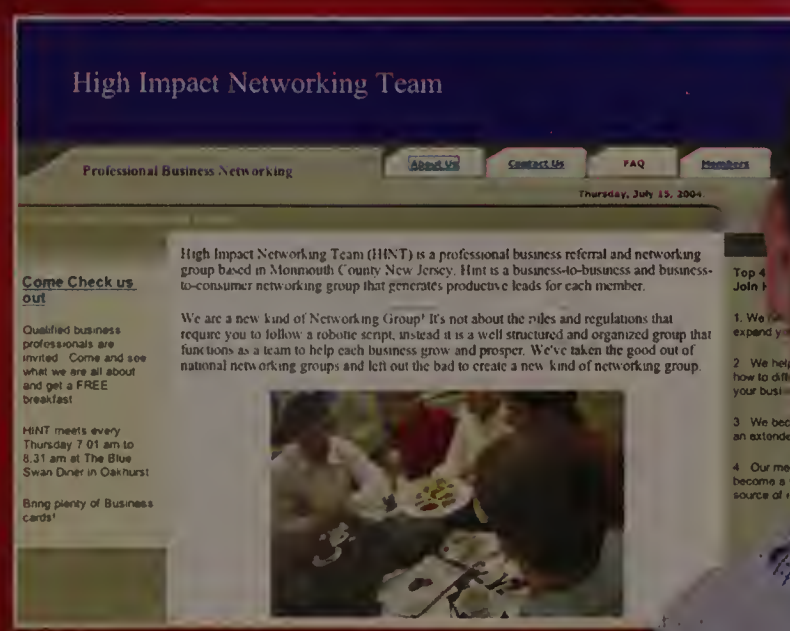

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PACKAGE FEATURES		
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Monthly transfer volume	25 GB	25 GB
FTP accounts	1	1
1&1 Control Panel	✓	✓
Logfiles	✓	✓
MARKETING TOOLS		
Chat channels	1	1
1&1 WebStatistics	✓	✓
SITE-BUILDING TOOLS		
PDF2Web Converter	✓	✓
DynamicSiteCreator	✓	✓
Graphic archive	✓	✓
WebsiteCreator	12 pages	12 pages
Software suite worth $600	✓	✓
FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	–	✓
DOMAIN NAMES		
Included Domains	1	1
Subdomains	10	10
Run multiple independent sites	✓	✓
Full DNS management	✓	✓
E-MAIL		
E-mail accounts w/ 1 GB space each	200	200
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus protection for all accounts	✓	✓
SECURITY FEATURES		
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
Dedicated SSL Certificate	optional	optional
SUPPORT		
24/7 phone support	✓	✓
24/7 e-mail support	✓	✓

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PACKAGE FEATURES		
Web space	2,000 MB	2,000 MB
Monthly transfer volume	50 GB	50 GB
FTP accounts	5	5
1&1 Control Panel	✓	✓
Logfiles	✓	✓
MARKETING TOOLS		
Chat channels	5	5
1&1 WebStatistics	✓	✓
In2site Live Dialogue	✓	✓
1&1 Newsletter Tool	✓	✓
1&1 WebElements	✓	✓
SITE-BUILDING TOOLS		
PDF2Web Converter	✓	✓
DynamicSiteCreator	✓	✓
Graphic archive	✓	✓
WebsiteCreator	18 pages	18 pages
Software suite worth $600	✓	✓
FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	–	✓
Perl, PHP3, PHP4, and PHP5	✓	–
1&1 WebDatabase	✓	✓
Database	1 MySQL	MS Access
Cron Jobs	✓	–
SSI (Server side includes)	✓	✓
DOMAIN NAMES		
Included Domains	3	3
Subdomains	50	50
Run multiple independent sites	✓	✓
Full DNS management	✓	✓
E-MAIL		
E-mail accounts w/ 1 GB space each	500	500
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus protection for all accounts	✓	✓
SECURITY FEATURES		
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
SSH Secure Shell Access	✓	–
Dedicated SSL Certificate	optional	optional
SUPPORT		
24/7 phone support	✓	✓
24/7 e-mail support	✓	✓

DEVELOPER PACKAGE

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PACKAGE FEATURES		
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Monthly transfer volume	100 GB	100 GB
FTP accounts	25	25
1&1 Control Panel	✓	✓
Logfiles	✓	✓
MARKETING TOOLS		
Chat channels	10	10
1&1 WebStatistics	✓	✓
In2site Live Dialogue	✓	✓
1&1 Newsletter Tool	✓	✓
1&1 WebElements	✓	✓
SITE-BUILDING TOOLS		
PDF2Web Converter	✓	✓
DynamicSiteCreator	✓	✓
Graphic archive	✓	✓
WebsiteCreator	25 pages	25 pages
Software suite worth $600	✓	✓
FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	–	✓
ASP.NET, .NET Framework	–	✓
Perl, PHP3, PHP4, and PHP5	✓	–
1&1 WebDatabase	✓	✓
Database	3 MySQL	MS Access, MS SQL
Cron Jobs	✓	–
SSI (Server side includes)	✓	✓
Perl Script Output Monitor	✓	–
Perl Syntax Checker	✓	–
DOMAIN NAMES		
Included Domains	5	5
Subdomains	200	200
Run multiple independent sites	✓	✓
Full DNS management	✓	✓
E-MAIL		
E-mail accounts w/ 1 GB space each	1,000	1,000
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus protection for all accounts	✓	✓
SECURITY FEATURES		
Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
SSH Secure Shell Access	✓	–
Dedicated SSL Certificate	✓	✓
SUPPORT		
24/7 phone support	✓	✓
24/7 e-mail support	✓	✓

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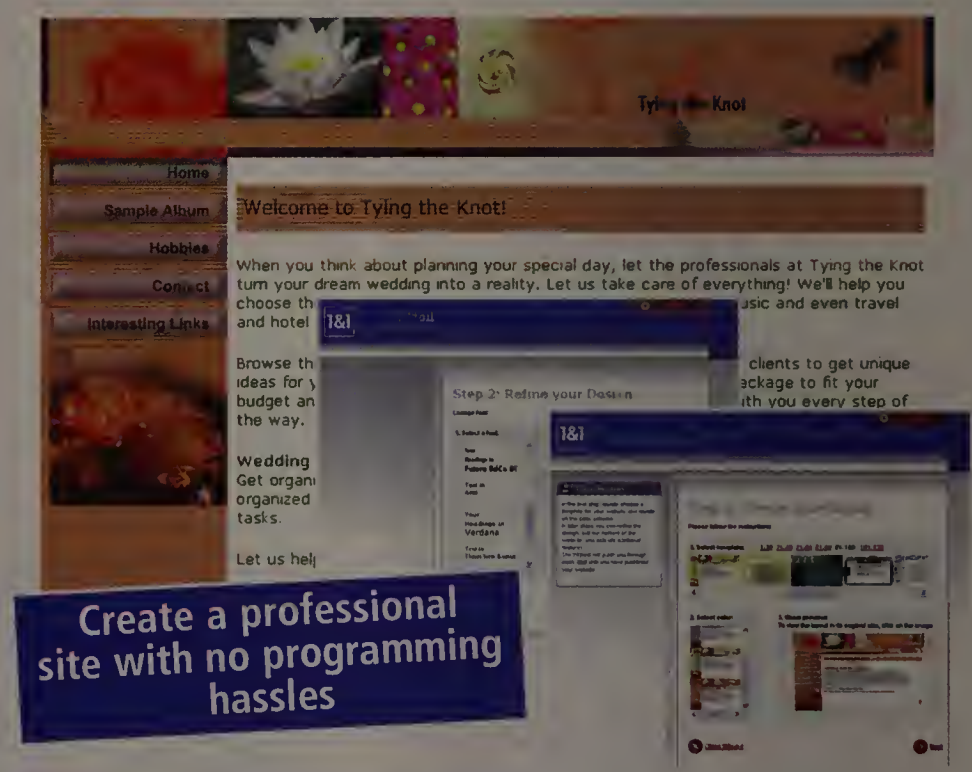

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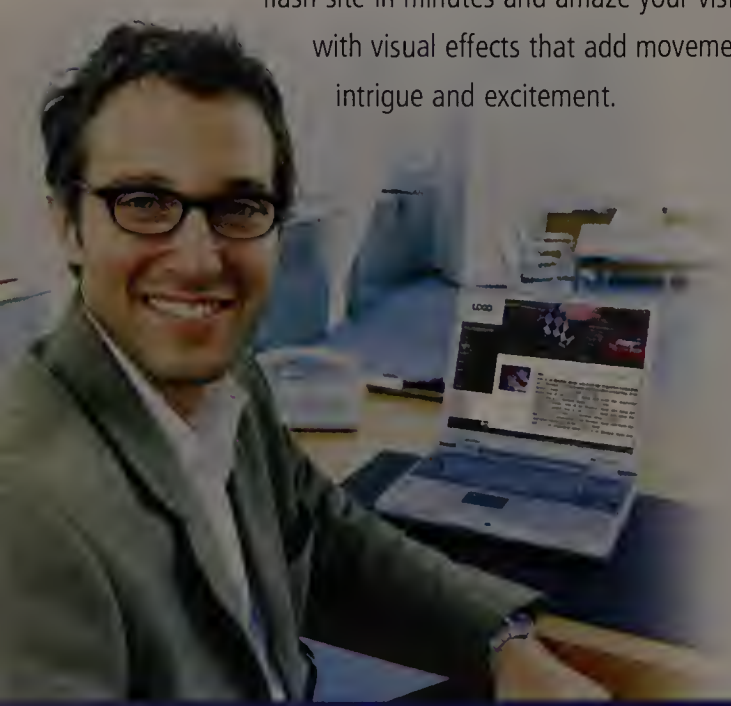

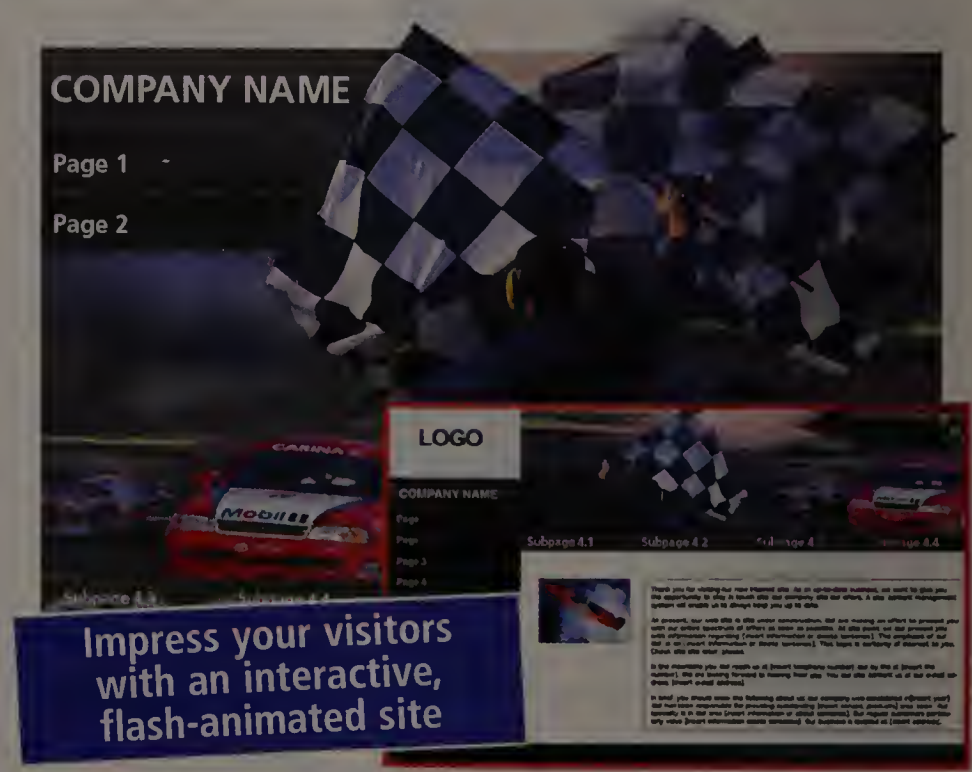

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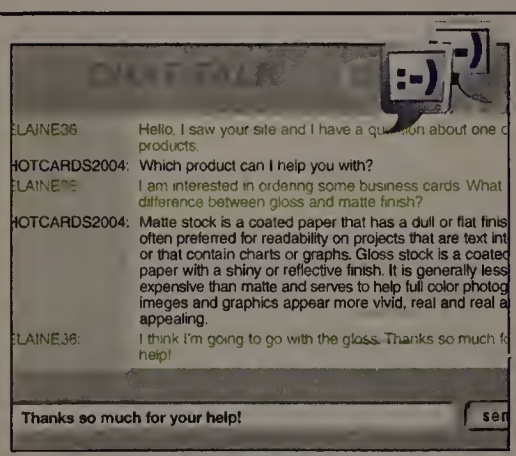

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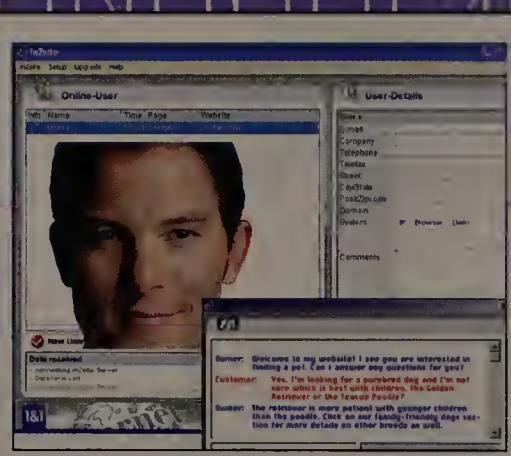

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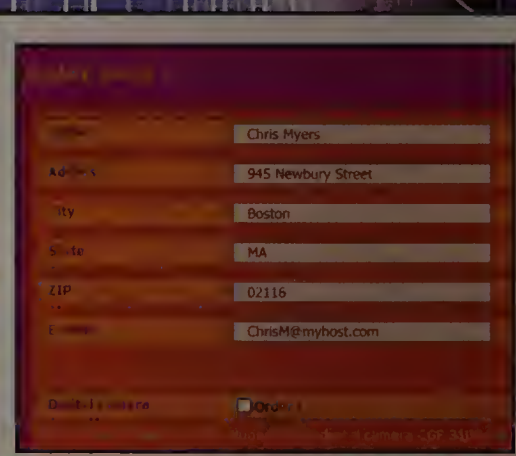

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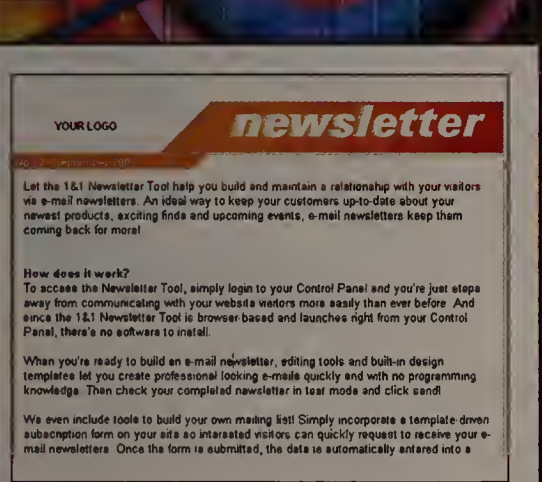

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E-mail newsletters provide an easy, cost-effective way to build and maintain relationships with your site visitors. The 1&1 Newsletter Tool lets you create and send professional-looking e-mails – with no programming hassles! You'll get everything you need to build your own mailing list, manage recipients' addresses, track results and more.

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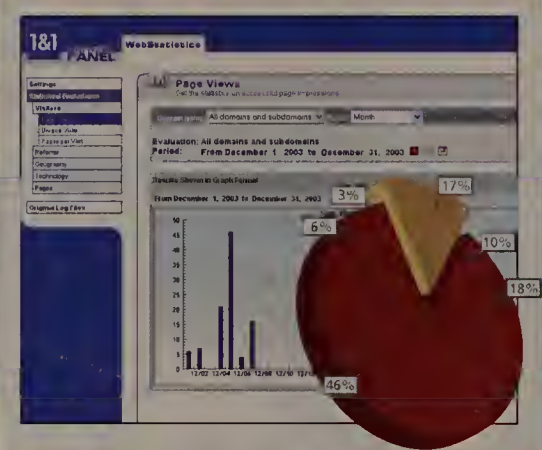
Stephen Bradshaw	1954 Corgin Street, Hudson, OH 44236	bradshaws@myhost.co
Catherine Leonard	64 Stanhope Drive, Pittsburgh, PA 15237	family@myname.com
Carl Brown	653 Liberty Avenue, Wilmington, NC 28403	brownc2521@lycos.com
Tom Stowe	26 N. Hills Road, Chandler, AZ 85226	webunited@gmx.net
Helen McSweeny	817 Providence Hwy, Boston, MA 02116	helenmcsweeney@hotmail.com

1&1 WebDatabase

1&1 takes the guesswork out of gathering, organizing, displaying, and maintaining large amounts of information with the 1&1 WebDatabase. Setup is a breeze! Simply select a template in the database building kit. Or customize your own database – just click the fields you'd like to include and you're ready to go!



1&1 WebStatistics

Understand visitor dynamics with 1&1 WebStatistics. Gather all of the information you need and generate a detailed analysis of how your website is performing. Display the information in the format you choose – pie charts, bar graphs, or simple numeric output. Use the data to improve navigation and maximize the success of your site!

FOR MORE DETAILS GO TO **1AND1.COM**

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1&1 SERVERS

1&1 Dedicated Servers – Delivering More Than Ever!

Take your web presence to the next level! 1&1 Root Servers and 1&1 Windows Server 2003 put you in the driver's seat with total control. Or sign up for a 1&1 Managed Server and let 1&1 handle all the server maintenance and administration. And now, you can accomplish more than ever online with more included features, more power, and more value for your money.

More Server Power

All 1&1 Servers have been powered up with boosted bandwidth of up to 1,500 GB and memory upgrade of up to 2,048 GB DDR-RAM.

Backup – No Extra Charge

Backup space matches your server's hard drive size so you can backup and protect all of your data. And, you pay nothing extra!

NEW! Serial Console

Through the SSH client, you can gain access to your server even if the network connection is interrupted.

NEW! 1&1 Firewall

Based on Cisco hardware, this fully configurable security feature helps prevent attacks by filtering traffic before it even reaches your server.

GeoTrust Dedicated SSL Certificate

An original GeoTrust Dedicated SSL Certificate is now included with all 1&1 Servers. Additional certificates can be purchased from 1&1 for just $49 per year.

NEW! 1&1 Root Server: Re-image

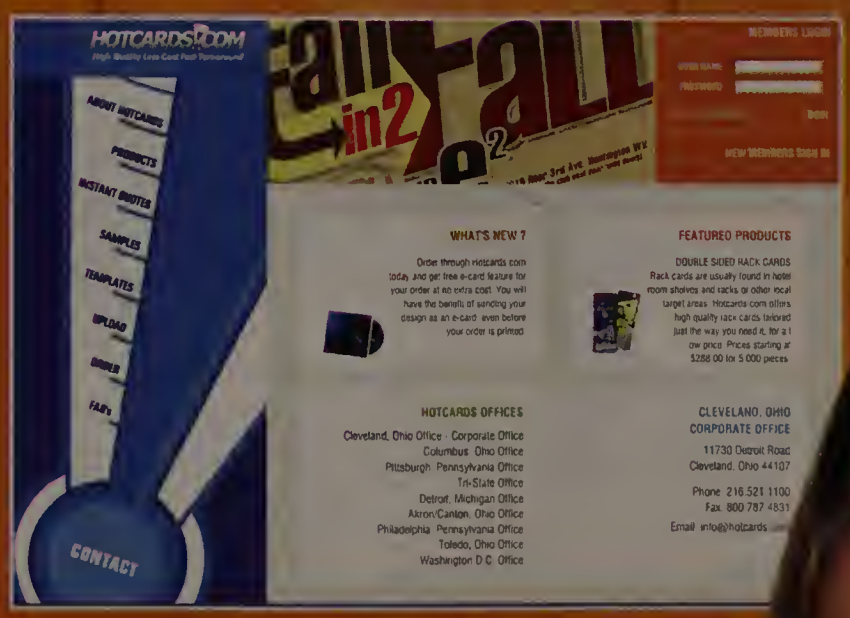
If the pre-installed operating system doesn't meet your needs, you can choose another pre-configured, Linux-based operating system and install it through the 1&1 Control Panel.

NEW! 1&1 Windows Server 2003: Rescue Image

Repair and restore damaged systems via a Java-compatible browser or VNC client.

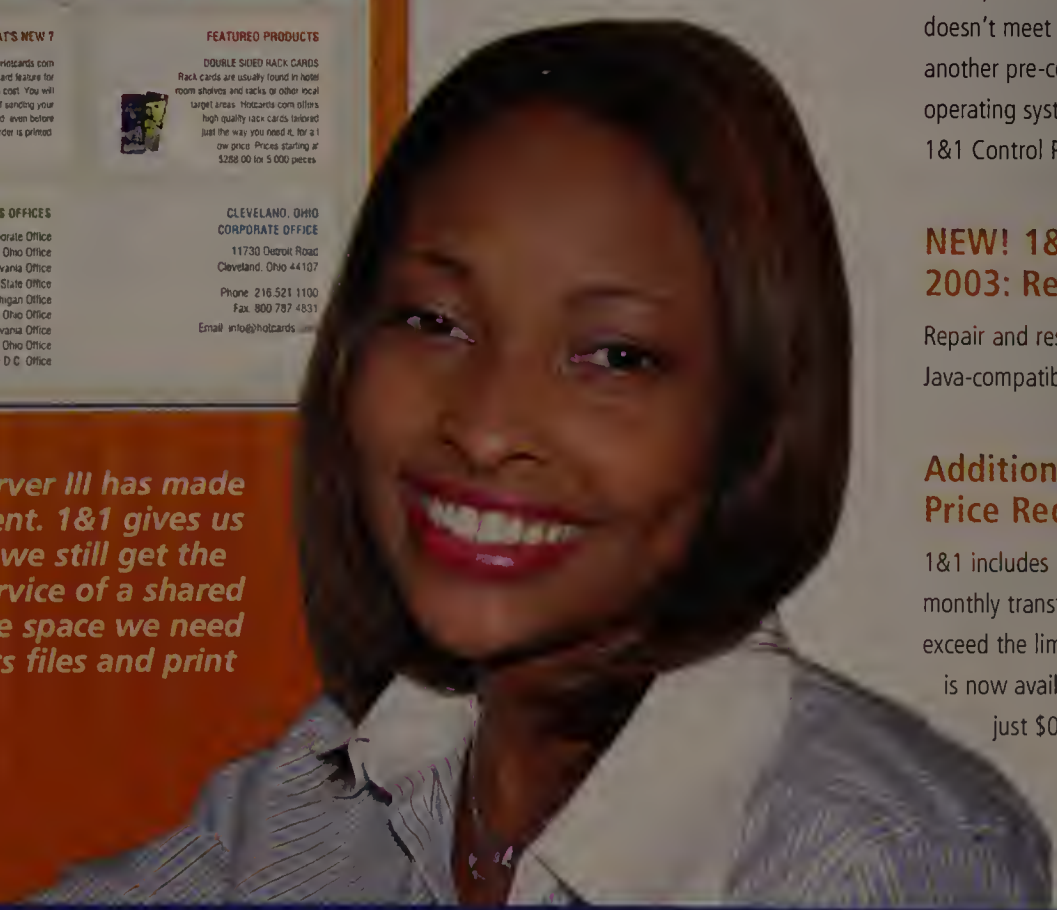
Additional Bandwidth – Price Reduced

1&1 includes a generous amount of monthly transfer volume. Should you exceed the limit, additional bandwidth is now available at half the price – just $0.49/GB!



"Moving to 1&1's Managed Server III has made our business much more efficient. 1&1 gives us our own dedicated server, but we still get the seamless, maintenance-free service of a shared hosting site. Plus, we get all the space we need for our high resolution graphics files and print samples."

Nikki Woodruff
www.hotcards.com



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$600 Productivity Software Suite INCLUDED*

1&1 ROOT SERVERS

For Maximum Flexibility and Control

- Plesk 7.5 Reloaded pre-installed
- Operating System: Fedora Core 2 Linux
- Recovery Tool: Smart reboot and restore capabilities
- 24/7 phone support

PLESK7.5 RELOADED

1&1 MANAGED SERVERS

For Performance and Convenience

- Enjoy the features and ease of shared hosting with the power of a dedicated server
- Management, administration and maintenance by 1&1
- Easy administration through the 1&1 Control Panel
- 24/7 phone support

1&1 WINDOWS SERVER 2003

For Security and Reliability

- Windows Server 2003 Standard Edition with Server III (Web Edition with Server I & II)
- MSDE pre-installed
- .NET Framework already integrated
- 24/7 phone support

	1&1 ROOT SERVERS	1&1 MANAGED SERVERS	1&1 WINDOWS SERVER 2003
SERVER I Intel Celeron 2.0 GHz 512 MB DDR-RAM 80 GB IDE hard drive 1,000 GB monthly transfer volume	$69 PER MONTH	$79 PER MONTH	$89 PER MONTH
SERVER II Intel Pentium 4, 2.4 GHz 1,024 MB DDR-RAM 80 GB IDE hard drive 1,200 GB monthly transfer volume	$89 PER MONTH	$99 PER MONTH	$109 PER MONTH
SERVER III Intel Pentium 4, 3.06 GHz Processor with Hyper-Threading 2,048 MB DDR-RAM 120 GB IDE hard drive 1,500 GB monthly transfer volume	$119 PER MONTH	$129 PER MONTH	$149 PER MONTH

*$6.99 shipping & processing fee applies
$99 one-time setup fee

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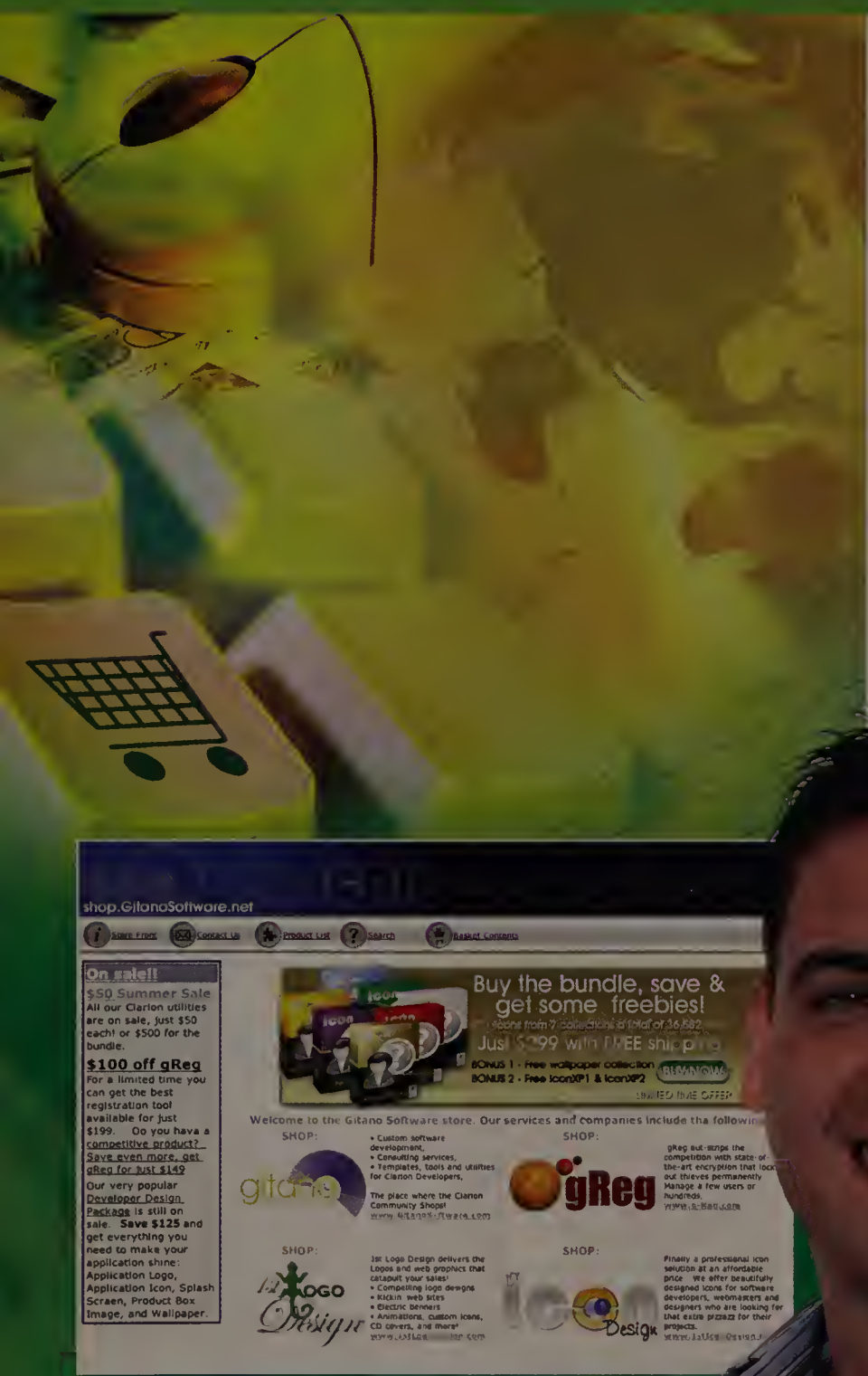
1&1 eSHOPS

Easy, yet sophisticated e-commerce solutions.

1&1 eShops are as powerful as any major online retailer, but with no software or hardware to install. Online wizards and a wide range of professionally designed templates offer such simplicity that your online shop can be up and running in less than an hour. Plus, 1&1 eShops are fully compatible with your current site, regardless of which hosting provider you use. 1&1 eShops include all the web space and bandwidth you need and require no additional hosting plan to get your online storefront open for business.



$600 Productivity Software Suite INCLUDED*

"A great experience is what we have encountered with our new 1&1 Developer eShop. 1&1 gives us exceptional value, high quality, and a level of customization we never had before. With very little effort we can offer discounts, purchase orders and more."

Jesus F. Moreno
shop.gitanosoftware.net

*$6.99 shipping & processing fee applies

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90-DAY MONEY BACK GUARANTEE

100% Satisfaction or your Money Back

30+ professional shop templates

- Ready to be loaded with your products
- Customizable with different fonts, colors and positioning

Secure online payments via PayPal and WorldPay

- No merchant account necessary with PayPal
- Connect with 35,000 loyal PayPal users – with no paperwork or bank application

8 easy-to-use wizards

- Step-by-step guides
- Quickly and simply configure:
  - Shopping basket
  - Order processing
  - Tax clearing
  - Delivery methods
  - Payment settings

SSL secured

- All shop-based settings created in SSL secured pages
- Maximum integrity of confidential data
- Fully protected from third-party access

Easy order processing

- Choice of shipping methods
- Multiple currencies supported
- Tax clearing server included

Dedicated SSL Certificate

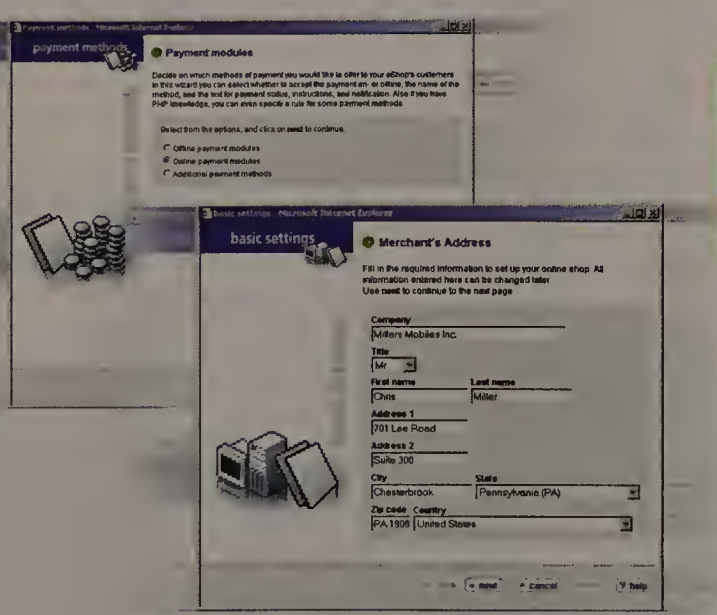
A Dedicated SSL Certificate from 1&1 shows your customers that your site is secure and they can conduct transactions with confidence. The certificate is included with the Developer eShop and can be added to the Business or Professional eShop for just $49 per year.

Hosting Included

With all 1&1 eShops, no additional hosting package is needed because web space, traffic and even e-mail accounts are all included! Plus, there's no software to install and 1&1 handles all the maintenance and updates so you can focus 100% on your online business.

And more!

- Google Conversion Tracking
- Froogle Product Search
- Customer account administration
- Easy account management for your customers



BUSINESS eSHOP

- 50 MB web space
- 10 GB monthly transfer volume
- 50 item product catalog
- Choice of 2 shipping methods
- 24/7 phone support

No setup fee **$9.99** PER MONTH

PROFESSIONAL eSHOP

- 300 MB web space
- 30 GB monthly transfer volume
- 200 item product catalog
- Unlimited item variants
- Choice of 5 shipping methods
- Multi-currency support
- Import/export customer data
- Online credit card clearing with PayPal and WorldPay
- Tax clearing server (calculates taxes by state, county and city)
- 24/7 phone support

No setup fee **$29.99** PER MONTH

DEVELOPER eSHOP

- 1200 MB web space
- 60 GB monthly transfer volume
- Unlimited item product catalog
- Unlimited number and depth of sub-categories
- Unlimited shipping methods
- Multi-currency support
- Import/export customer data
- Online credit card clearing with PayPal and WorldPay
- Tax clearing server (calculates taxes by state, county and city)
- FTP access
- Customer account management
- Fully customizable templates
- Dedicated SSL Certificate included
- In2site Live Dialogue
- 24/7 phone support

No setup fee **$49.99** PER MONTH

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1&1 MAIL

1&1 gives you two great ways to get mail.

Whether you need e-mail for personal use or business use, 1&1 has your perfect solution. 1&1 Instant Mail is ideal for private users, allowing you to send and receive personalized mail from your own domain. 1&1 Microsoft Exchange Hosting gives you or your entire business reliable, affordable, up-to-date access to your critical information – anytime, anywhere.

"Running a consulting company, I can be working from several locations each day. With 1&1's Microsoft Exchange service, I can easily access my Outlook data and important files from any computer. Whether I am on my desktop, notebook, PDA, or a client's computer, my work environment is synchronized with 1&1. For my small businesses maintaining my own Microsoft Exchange server had always been too costly or too difficult. With 1&1's service, it is now simple and affordable to work and share information virtually anywhere."

Michael Krupit

1.877.GO1AND1

MONEY BACK GUARANTEE

90-DAY MONEY BACK GUARANTEE

100% SATISFACTION OR YOUR MONEY BACK

1 GB MAILBOX SPACE

1&1 INSTANT MAIL

Mail in an Instant!

What does your ambiguous e-mail address say about you? Are you ready to take your personal e-mail to a more professional level? Then 1&1 has your solution. Simply sign up for 1&1 Instant Mail and then add on your domain. In just minutes you'll have the power to send and receive e-mail from your own domain name.

- 5 e-mail accounts with 1 GB space each – IMAP & POP supported
- Spam filter included for all 5 accounts
- Virus protection for all 5 accounts
- 10 e-mail aliases
- Includes 1&1 WebMail – access mail anytime from anywhere
- Send and receive e-mail from your domain
- Easy setup via the 1&1 Control Panel
- 24/7 phone support

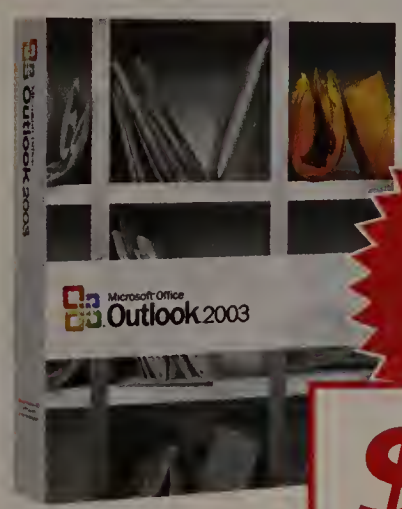
No setup fee **$0.99** PER MONTH

1&1 EXCHANGE HOSTING

Exchange made easy!

Your Microsoft Exchange Hosting Plan from 1&1 lets you enjoy the communication and collaboration features and benefits of Microsoft Exchange without the hassles of maintaining your own Microsoft Exchange server. Read, send and receive e-mail and access your public folders, contacts and calendars at anytime, from anywhere via Microsoft Outlook® or any web browser.

- Includes 1 Exchange account
- 1 GB e-mail storage space
- Group functionality tools
- Outlook® Web Access
- Synchronize your data with ActiveSync
- Virus Scanner installed on the Exchange Server
- Spam filter included in Outlook 2003
- 24/7 phone support



OUTLOOK® 2003 INCLUDED*
With all Exchange accounts

*$6.99 shipping & handling applies.

No setup fee **$6.99** PER MONTH

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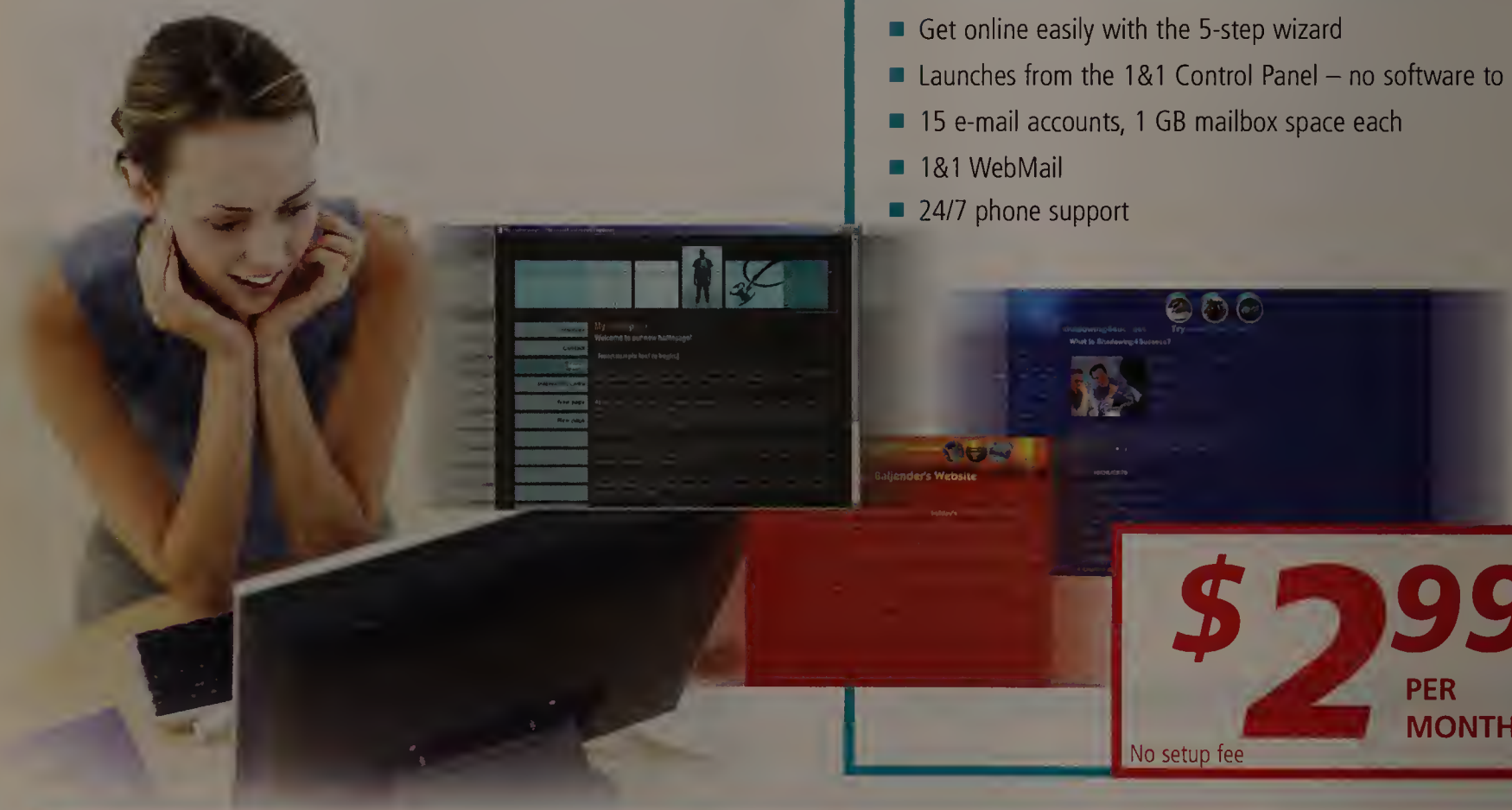
WEBSITE IN AN INSTANT

Create your ideal website in just 20 minutes.

1&1 makes it fast and easy to establish your presence online. Simply sign up for 1&1 Instant Website and then add on your domain. Whether you're a beginner building your first site or an experienced programmer looking for an additional site with no programming hassles, 1&1 Instant Website offers an ideal solution.

1&1 INSTANT WEBSITE

- Create a 12-page site with WebsiteCreator
- Choose from 120 professionally designed templates
- Get online easily with the 5-step wizard
- Launches from the 1&1 Control Panel – no software to install
- 15 e-mail accounts, 1 GB mailbox space each
- 1&1 WebMail
- 24/7 phone support



$2.99 PER MONTH

No setup fee

1&1 INSTANT DOMAIN

Domain in an Instant!
Are you looking to make your mark? Then register a domain name with 1&1 – 4.6 million domains are already registered worldwide – and protect your business idea, brand, family name, or hobby.
Establish your web identity today!

- DNS management
- Transfer existing domains at no additional cost
- Catch-all e-mail, auto-responders, unlimited e-mail forwarding
- Domain parking for future use
- Masked website forwarding

REGISTER DOMAINS FOR:

$5.99 PER YEAR

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Member of united internet

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129 NEXT-GEN PHOTO SHARING
136 GADGET FREAK: TV ON THE RUN
136 NEXT UP: THE SLINGBOX

The new world of personal tech—for the living room and beyond

NEXT GEAR

EDITED BY CATHY LU

BETTER PHOTO SHARING

NEW INTERNET SERVICES LET YOU DO MORE THAN POST PICTURES. CHAT, BLOG, AND CAMERA-PHONE SUPPORT ADD INNOVATIVE WAYS TO SHOW OFF YOUR PHOTOS. BY NIKKI McDONALD

I LIVE FAR AWAY from my parents, which has always meant sizable phone bills and frequent vacations to Ohio instead of, say, Hawaii or Switzerland. In between the phone calls and visits, we send each other digital pictures to show off everything from new haircuts to that cute thing the dog did the other day.

However, taking pictures has always been easier than sharing them. E-mailing takes forever, and sometimes my parents can't even open the attachments. Luckily, today's photo-sharing services make showing pictures to friends and family fast and easy.

I reviewed four services that go beyond traditional photo sharing: HeyPix, Flickr, OurPictures, and Google's Hello (which works in tandem with its photo organizer, Picasa). All of them provide at least some advanced features, such as blog support, instant messaging, chat, and camera-phone sharing. With almost every one, I found a unique feature or two that I really liked. And one service proved to be even more captivating than a TBS movie marathon.

IT TAKES A COMMUNITY

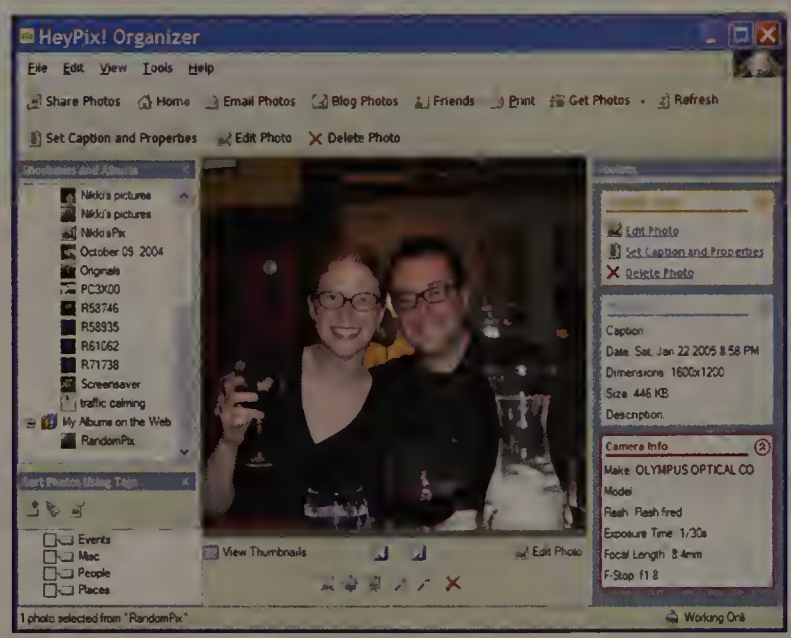
I'VE ALWAYS BEEN told it's not what you know, but who you know, and the truth in this statement became apparent when I tried out two ▶

ILLUSTRATION: JOHN KUCZALA

photo-sharing sites that had some cool blogging features.

Look at www.photoblogs.org for a listing of the Web's most popular picture-based blogs, and you'll soon see why so many photo-sharing services are incorporating blog support. Unlike me, there are some really good photographers around. Still, I figure I'll have children someday and will need to put up a baby blog or risk getting hauled away for child neglect.

I started out by trying the new HeyPix service. Using HeyPix's free Organizer app, I transferred all of my pictures to "Shoeboxes" on my PC and then stored them in "Albums" (also on my PC) that I could use to share photos on a HeyPix Web page, through e-mail, or on my own blog. It's bad enough for a computer slob like me to organize my photos once, but to have to do it twice before I could begin sharing photos was a pain.



HeyPix
★★★☆☆
www.heypix.com
Cool: Easy blog support, plus it lets friends share their photos alongside yours.
Not cool: The Organizer application (shown at left) should be more intuitive.
Pricing: Free for 50MB of storage and 200MB monthly transfer; $5/month for Standard (1GB of storage, 2GB monthly transfer); $8/month for Pro (3GB of storage, 5GB monthly transfer)

The HeyPix Organizer also skimps on editing features, providing only rudimentary tools for cleaning up images. Although it supplies the same basic editing tools you can find in other free programs—red-eye removal, image cropping, RGB adjustments, and so on—the tools just don't offer enough control.

The service does, however, let you receive images directly from your camera phone (by sending pics from your phone to a specific e-mail address) and upload photos to blogs created with a variety of popular blogging tools (including Blogger, LiveJournal, Movable Type, and TypePad). I was able to upload puppy pictures to my doggie devotional on Blogger with far less trouble than I had figuring out how to set up Organizer to receive pictures from my camera phone. (Hint to frustrated users: Select an Album and then click *Set Permissions*.)

The custom URL (www.*yourname*.heypix.com) you get when signing up for your free account provides a nicely designed photo page to show to friends. I was able to set permissions to let friends comment on my pictures and display photos of their own on my site, which would have been fun if any of my friends had posted any pictures. As I said, it's not what you know....

You may want to monitor your site's content. While I was writing this article, the HeyPix home page showed a selection of the latest member pictures, and the top shot was one of a rather large man in a plaid shirt baring his, uh, rear. Children, cover your eyes!

HeyPix includes 50MB of storage and 200MB of photo

PHOTO SHOWS

PICTURES WITHOUT THE PC

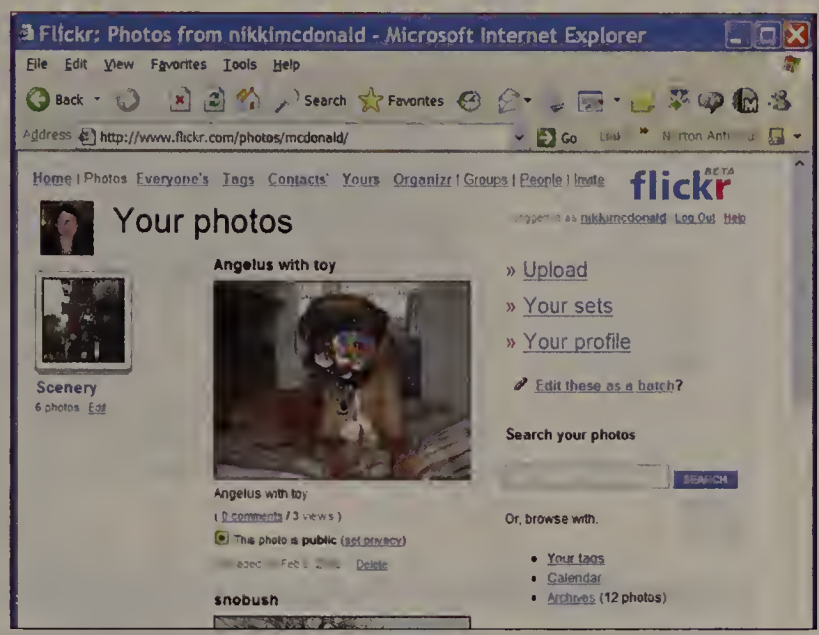
THESE DAYS YOU DON'T need a PC to enjoy digital pictures. The following are products that let you bypass the computer altogether for viewing and sharing your digital photos.

Ceiva 2 Digital Photo Receiver Plug your Ceiva 2 LCD picture frame into your phone line, and the frame will dial a free, secure phone number in the middle of the night to download as many as 30 new pictures. You, your family, and friends e-mail the photos you want to share to the Ceiva service—you can even send images via camera phone. ($150, plus monthly service starting at $7 for a three-year plan, find.pcworld.com/47176)

MSN TV 2 Internet & Media Player This set-top box lets you store up to 100 pictures and view them on your TV. Download pictures directly from your camera's memory card, or send them via your MSN TV e-mail account. You can also print from your MSN TV 2 box and set photos to serve as screen savers for when you finally get sick of watching Donald Trump fire people. ($200, find.pcworld.com/47178)

OurPictures TV OurPictures Deluxe users will soon (in the first half of the year) be able to view their pictures on a TV using the Roku HD 1000 digital media player ($299, find.pcworld.com/47174). You will even be able to use your TV to send images to a local 1-hour photo retailer for printing. ($30 annually, www.ourpictures.com)

transfers per month for free. Anything above that costs at least $5 a month, which gets you 1GB of storage and 2GB per month of transfers.



Flickr
★★★★½
www.flickr.com
Cool: People with similar interests can make comments on your photo page (shown at left).
Not cool: Free account is limiting, and extras cost.
Pricing: Free for 10MB monthly uploads, three-album limit; $60 for Pro (includes 1GB monthly uploads, unlimited albums, and storage of high-resolution images)

A FLICKR OF HOPE

WHILE HEYPIX tries to build community by letting users share pictures on each other's sites, Flickr has a totally new approach that has made it one of the most popular photo-sharing sites on the Web—and it's still in beta.

When I uploaded my pictures to Flickr's server and signed up for my free account, I was asked such personal questions that I felt as if I were joining an online dating service. Who's your favorite author? What are your hobbies? What's your favorite movie? Based on the answers to these questions, you can find other Flickr users with common interests.

A quick look at my profile will reveal that I'm a David Sedaris fan. Within a week I was chatting and sharing pictures with new friends in Texas, Colorado, India, and Brazil. We started out discussing books, which led to the embarrassing revelation that a few of us are fantasy geeks. Someone told me that a Trekkie group exists, but it's in decline—not that I'm a Trekkie. Because I'm *not*.

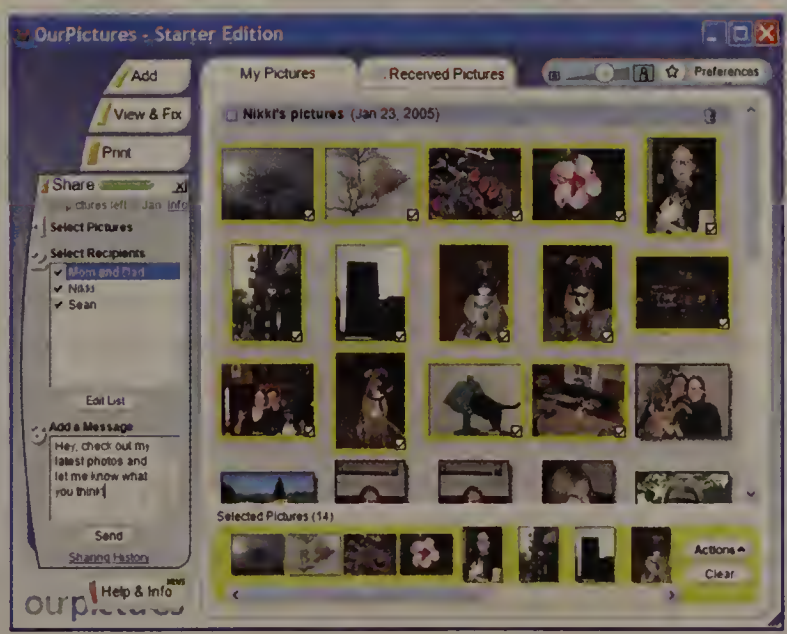
When you join Flickr, you upload images to a Web page that displays all of your pictures. You can invite others to look at all photos you mark as public. You can also share pictures using the Flickr chat software, FlickrLive, just by dragging a picture from your gallery into the chat window.

When I wasn't busy chatting, I was checking my photo collection to see if anyone had commented on my pictures or bookmarked them as Favorites. I also used Flickr to upload photos to my Blogger-hosted blog (Flickr supports LiveJournal, Moveable Type, and TypePad, as well). If your friends and family subscribe to RSS feeds, they can view all of your latest photos the instant that you post them.

Flickr also offers every level of camera-phone support. I e-mailed amusing pictures of my friend Stephanie sporting fake facial hair (don't ask) from my phone to my Flickr account, and the photos went live within minutes—much to her embarrassment. Later, I was able to call up all of my Flickr photos through my mobile phone's Web browser.

After just over a week of using Flickr, I'm hooked. I've gone from checking my e-mail account every 2 minutes to checking my Flickr account instead. Free accounts limit you to 10MB monthly uploads and three Photosets (albums)—and they store only smaller, resized versions of your photos. A Pro account, which costs $60 a year, gives you 1GB of monthly uploads plus unlimited storage, bandwidth, and Photosets. It also allows you to archive high-resolution images and will soon let you browse sans advertisements.

OurPictures
★★★½☆
www.ourpictures.com
Cool: You can send photos to a local photo processor, as well as e-mail pictures from a camera phone to your OurPictures album (shown at right).
Not cool: The service has no support for photo blogs.
Pricing: Free (25-picture sharing limit, no camera-phone support); $30/year for Deluxe (unlimited picture sharing and camera-phone support)



SEND IT TO ME STRAIGHT

THOUGH SITES LIKE HeyPix and Flickr force you to upload your pics to their servers before they let you display the photos online, services like AllPeers, Electric Shoebox, FotoSwap, Hello, OurPictures, and others use peer-to-peer file sharing to allow you to trade photos directly with friends—no uploading them to a server or sending them as e-mail attachments.

As nauseatingly banal as its tagline, "Digital photos, ▶

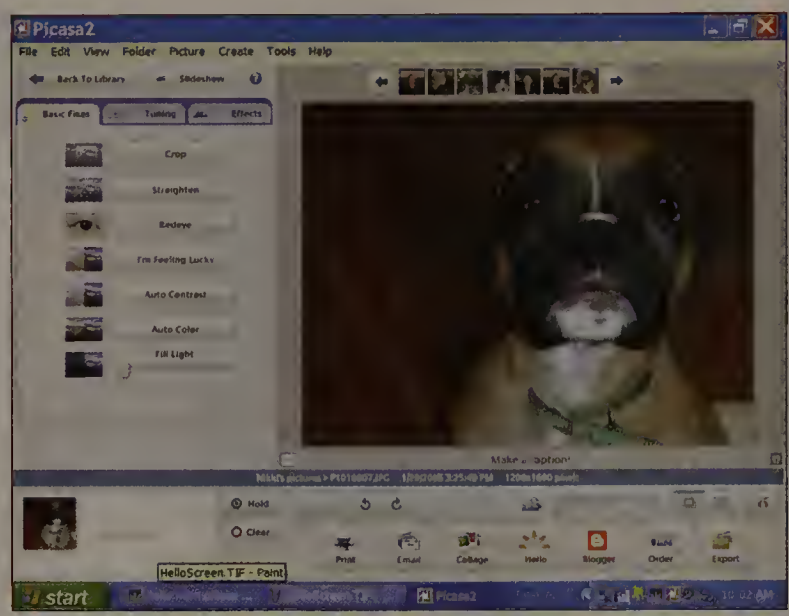
simple as a smile," may be, OurPictures does actually provide a simple solution for sharing images.

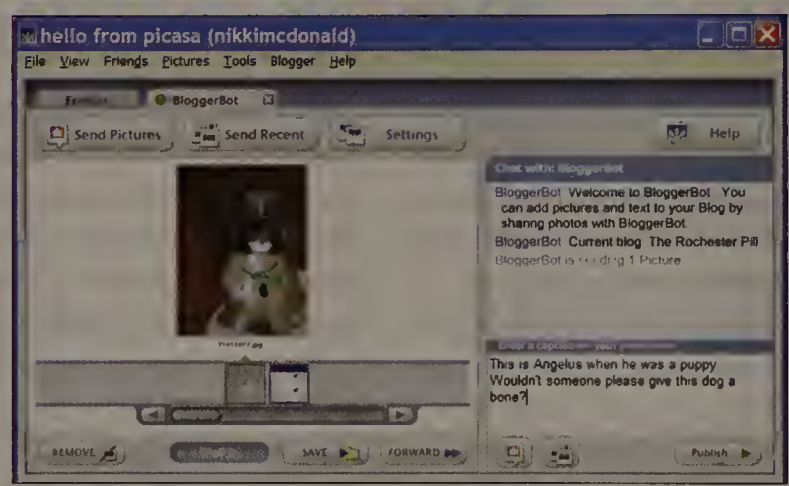
After importing my photos to albums in the OurPictures organizer on my PC, I clicked the ones I wanted to share and then typed in my dad's e-mail address and a short message. OurPictures sent an e-mail containing a direct link to a page on its Web site that displayed them all.

My dad received the message almost instantly and was able to view and save the photos. He typed in his zip code, and up popped a list of online photo processors and local retailers that support OurPictures (including Ritz Camera and Wolf Camera stores). This is a great service—if you're like me, you're too impatient to wait for prints to arrive in the mail and too lazy to print photos yourself.

On the downside, I found OurPictures' editing tools meager, with just a couple of buttons and a slider to rotate, adjust brightness, fix red-eye, crop, and write captions. The service doesn't support blogs or offer any kind of cool chat features, either.

Transferring pictures from a camera phone to OurPictures was a cinch. Just send the pictures to the e-mail address the service provides, and the images automatically appear in the organizer on your PC. Unlike with other sites, though, I had to pay for the privilege by buying the Deluxe package, which costs $3 a month or $30 annually. The Deluxe package also lets you share more than 25 pictures a month (the limit with the free version) and includes OurPictures TV (see "Pictures Without the PC," page 130), which is set to launch in the first half of this year.





Picasa 2 and Hello

★★★★☆

www.picasa.com, www.hello.com

Cool: The Picasa 2 photo organizer has a well-designed interface, and is friendly and easy to use. It offers extensive new editing tools (shown at top left) and works seamlessly with Hello and Blogger to let you share photos via e-mail, through instant messaging, or on your blog. The Hello chat program (bottom left) allows you to instant-message multiple photos simultaneously with a click of a button. Plus, you can't complain about the price: This combo doesn't cost a thing.

Not cool: The service supports only blogs hosted on Blogger. Also, Picasa 2 is unable to receive pictures sent from a camera phone.

Pricing: Free

PICTURE PIZZAZZ WITH PICASA

DON'T WANT to spend a dime? Then Google's newly updated Picasa 2 will have you at Hello.

Hello (a peer-to-peer photo-sharing and chat application) and Picasa 2 (a PC-based photo organizer) work as a unified team. The two are so nicely designed and integrated that I never had to search for a feature or struggle to learn how to use any tool.

I downloaded Picasa 2 and was amazed at how quickly it rifled through my hard drive, tracked down every picture, and stored them all in neat albums organized by date. I imagined myself as Samantha from *Bewitched* organizing my sloppy hard drive with a twitch of my nose and watching the files fly magically into place.

The latest version provides lots of new features such as the ability to drag and drop images within and between albums—making it the easiest to use of the programs I tested for this story. The new editing tools are, surprisingly, quite useful: In addition to functions for removing red-eye and adjusting lighting and color, you get 12 extra effects, including sharpening. I batch-sharpened my entire album, and all the photos looked better instantly. (For more about Picasa 2, read the in-depth review on page 52.)

SAY HELLO

AFTER TWEAKING my pictures, I clicked the Hello button at the bottom of the Picasa screen and tried to instant-message my dad some pictures. Unfortunately, he's a Mac user and Hello is for PC users only, so I clicked the Blogger button (another new feature) at the bottom of the screen and posted a picture to my blog instead (Hello supports only Blogger and not other blogging tools).

The only things missing are the abilities to send shots from your camera phone directly to Picasa and to transfer photos from Picasa to your phone. All the other photo-sharing sites allow it. But if you don't use a camera phone regularly, you'll find Picasa and Hello to be an easy and enjoyable way to quickly share your photos. ■

Nikki McDonald is a freelance writer and editor who lives in Rochester, Minnesota.

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GADGET FREAK

DAN TYNAN

MY TV IS FOLLOWING ME

AS A RULE I TRY to avoid watching too much television. But in a world where every bar, restaurant, hotel, and airport has an idiot box blaring in the corner, this is harder than it sounds. And with live TV coming to cars, computers, and cell phones in the near future, there may be no escape.

"Very soon, many mobile devices will indeed have TVs," predicts Mark Bunger, principal analyst for Forrester Research in San Francisco. "Not just your phone and car, but your keychain too."

Mobile TV is already finding its way to portable PCs. For a fee of $10 monthly or $80 annually, Orb Networks (www.orbnetworks.com), formerly known as AllMiMedia (see my July 2004 *Gadget Freak* column, "Lost in Transmission," find.pcworld.com/47276), lets you log on to the Net from a handheld, notebook, or cell phone and access TV shows you've recorded on your Windows Media Center PC or, soon, on your Windows XP computer. Sling Media's Slingbox is similarly empowered (see *Next Up*).

But the real TV action is in cell phones. Every major cell phone maker and carrier is working on a scheme to deliver TV content to your handset. The folks at Philips Semiconductors anticipate that in a few years half of all handsets—that's more than 300 million worldwide—will come with TV chips. Cell carriers love the idea because these subscription services are yet another means to separate customers from their money. But will anyone else love mobile TV?

DIAL AND ERROR

IF YOU SUBSCRIBE to Cingular, Midwest Cellular, or Sprint PCS, you may already be able to get live television on your cell phone. For $10 per month, MobiTV (www.mobitv.com) serves 25 live channels, among them ABC, C-SPAN, Country Music Channel, Discovery Channel, Fashion TV, NBC, Toon World, and Vegas Sports. The service works on more than 30 phone models, including the Motorola Razr V3, Nokia 6620, and Samsung A700. Other compatible carriers and phones should be available by the time you read this.

Using MobiTV isn't much like surfing from your couch, however. The sound can be garbled and the video choppy. I was lucky to get 10 frames per second on my Samsung A700 phone (standard video is 30 fps); older mobiles may manage only a single frame per second. The picture was so fuzzy, I had a hard time distinguishing between Matt Lauer and Katie Couric, and there was a 5-to-15-second lag when changing channels—something that would quickly drive an obsessive channel surfer like me insane.

Worse, watching television will drain your cell phone's batteries in about 2 to 3 hours. And while you're watching, all your calls will go straight to voice mail, which wipes out the whole reason for carrying a cell phone.

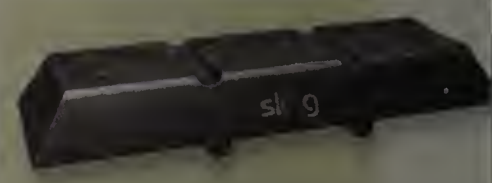
The performance problems will likely evaporate as bigger-bandwidth networks get built. High-speed 3G cellular networks are slowly coming on line, but when one will reach your neck of the woods is anyone's guess. And though a 1-inch-tall Shania Twain is not something I really need in my pocket, I can see mobile TV appealing to sports and news junkies who can't wait to get home to watch the highlights, as well as to weary commuters trying to kill time on the train.

Still, the gadget I long for is TV-B-Gone (www.tvbgone.com), a $15 dingus that lets you turn off any television with just a single click. Then again, if everyone has a TV set on their phone or handheld, maybe those public televisions will go away. I'm not holding my breath on that one. ■

Contributing Editor Dan Tynan watches a little TV (literally).

NEXT UP

TV on the Run



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2800+		$ 1295	CNBA55

$1,295

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$1,169

CyberPOWER Inc

SPOTLIGHT: WIDE-SCREEN NOTEBOOKS

WIDE OPEN FOR WORK: Compaq's Presario V2000 (left) has a 14.1-inch wide screen, while the Gateway M460X offers a 15.4-inch wide screen.

A Walk on the Wide Side

Wide-screen notebooks make standard-screen portables look totally square.

THERE'S A NEW ANGLE in screens these days—wide angle. You can choose a wide-angle flat-panel monitor to grace your desktop, or a wide-aspect flat-panel LCD TV for your living room or to hang on the boardroom wall. And now, three years after Apple introduced the first wide-screen laptop, wide-screen notebook PCs are really coming into vogue.

The standard, squarish laptop screen has a width-to-height ratio that's usually expressed as 4:3 or 1.3:1, about the same as a television set. In contrast, a wide screen is more rectangular, with a ratio of 16:10 or 1.6:1. The wider shape permits you to keep more documents on screen at once so you can avoid having to toggle through them. You can also comparison-shop easily at two Web sites positioned side-by-side, for example, or you can see more of the data in a large spreadsheet.

But a bigger display area is not the only benefit that wide-screen laptops provide. They usually have larger keyboards than their standard counterparts offer; some 17-inch wide-screen units even include a separate numerical keypad, which number crunchers may find very handy.

We examined seven recent wide-screen notebooks, including two 14.1-inch models from Compaq and Gateway; four 15.4-inch units, from Dell, Gateway, HP, and Micro Express; and a humongous 17-inch

PHOTOGRAPHS: MARC SIMON

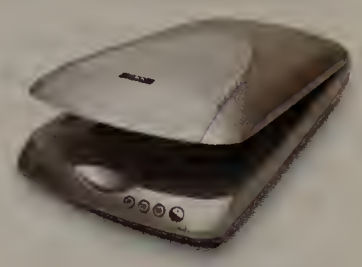
147 **DESKTOP PCs**
Three new systems debut on our desktops chart this month. The ABS Ultimate M6 set a new performance record in our WorldBench 5 tests.

149 **DVD DRIVES**
Our chart of internal and external models sees six new drives that make the cut. Pioneer's DVR-A09XL was a speed whiz in our tests.

151 **AUDIO PLAYERS**
Our chart of audio players consists of two sections: large-capacity and mid-capacity. Three Apple players and one Creative model make their debut.

153 **DIGITAL CAMERAS**
Our point-and-shoot digital cameras chart hosts four new entrants this month, with HP's Photosmart R717 ascending the highest.

155 **MORE REVIEWS**
Flatbed scanners, 19-inch LCD monitors, and photo printers headline our recap of products that made the *Top 100* charts in previous months.



laptop from Fujitsu. Though we enjoyed seeing more on each screen, we found that users do have to make a few compromises. For example, the wide screens make the units a bit more difficult to tote.

Wide-screen notebooks don't make great out-of-the-box gaming machines, because of their wide aspect ratio; however, you may be able to avoid a stretched picture by using some games' command-line settings or your video card options to switch the aspect ratio to 16:10. If you plan to show projector presentations prepared on a wide-screen laptop, be careful. You'll need either to create the presentation in a standard resolution or to set the correct aspect ratio on the projector.

Will you have more fun with a wide screen? Unless you come across a DVD recorded at an aspect ratio of 1.6:1 or 1.78:1 (as opposed to the 1.85:1-to-2.35:1 range that Hollywood prefers), a wide screen won't spare you from the letterbox effect. On the bright side, though, a letterboxed DVD movie plays larger overall and is easy to watch on a wide screen because the screen's dimensions approximate the shape of the picture more accurately.

A WIDER SHARE

THANKS TO THE wide-screen LCD television boom, wide-screen laptops should be in abundant supply for the foreseeable future, according to John Jacobs, who is director of notebook market research at flat-panel market research and consulting company DisplaySearch, based in Austin, Texas. Large glass producers such as Samsung and LG Philips are ramping up their production primarily to accommodate the TV market, but plenty of material remains for wide-screen laptop manufacturers, too. It doesn't hurt that wide screens are less expensive to produce than standard portable screens because they waste less LCD motherglass.

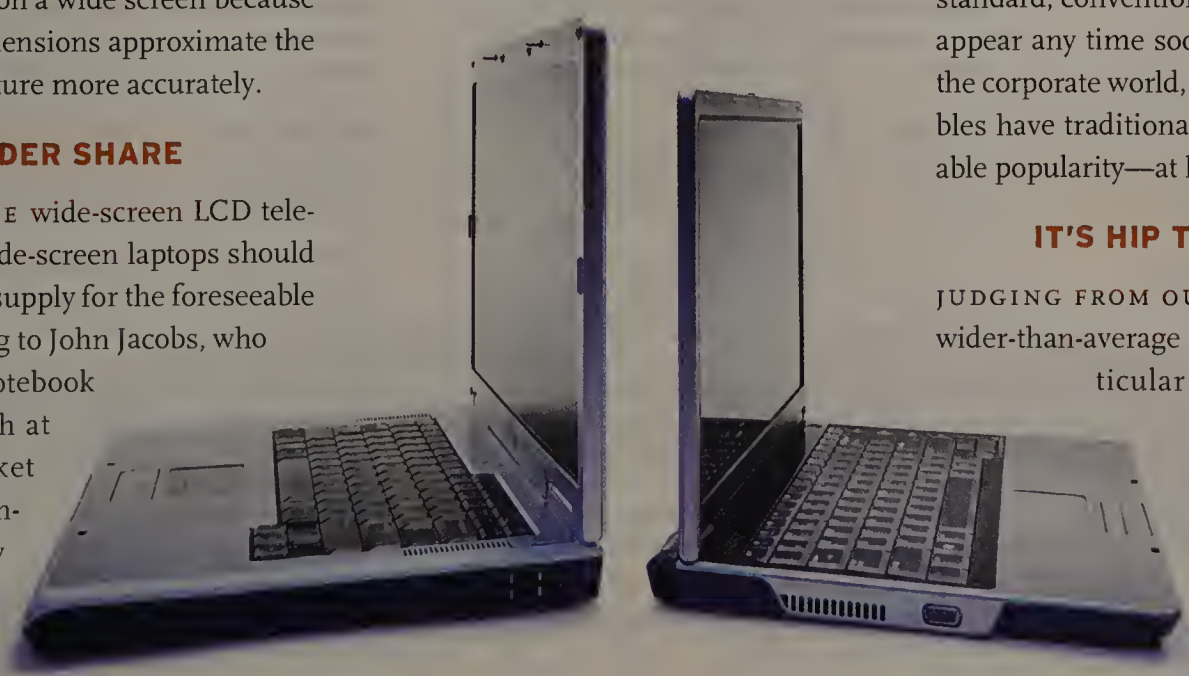
> A bigger display isn't the only benefit: Wide-screen notebooks have larger keyboards than standard-screen models.

After a slow start, wide-screen laptops have begun to steal some sales from their standard-screen-size brethren. According to Jacobs, wide-screen notebooks accounted for only 7.5 percent of worldwide sales in the fourth quarter of 2003, but a year later they claimed almost 20 percent of all laptop sales. The 15.4-inch laptop is the best-selling size, garnering about 22 percent of overall wide-screen sales, followed (in order of popularity) by 17-inch, 14.1- and 14-inch, and 12.1-inch models. Even so, currently you can expect to pay a premium of $50 to $60 for a wide-screen laptop, according to Ken Dulaney of Gartner Research.

Though hard market numbers are scarce, currently more consumers than business buyers are embracing wide screens. "Consumers tend to accept them as full-fledged entertainment centers, especially the 17-inch wide screen," says Dulaney. "For example, a student takes one of these to their dorm and they have a TV and almost everything else they need to keep themselves occupied outside of studying."

Dulaney believes that notebooks with standard, conventional screens won't disappear any time soon—especially not in the corporate world, where no-frills portables have traditionally enjoyed considerable popularity—at least among bosses.

IT'S EASY TO SEE the height difference between the 15.4-inch Dell Inspiron 6000 (left) and the 14.1-inch Gateway M210S.



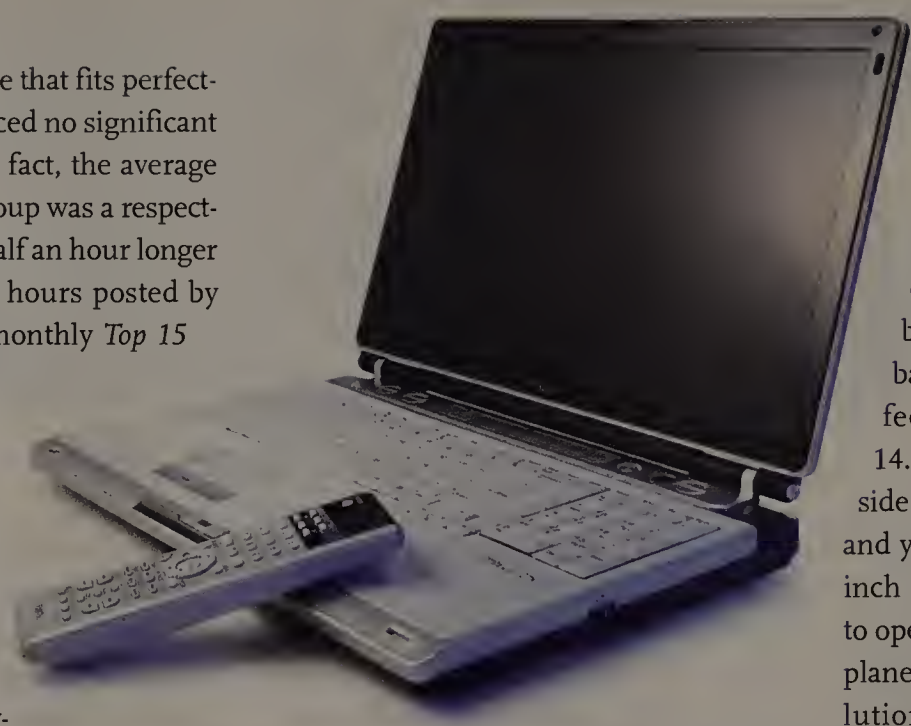
IT'S HIP TO BE WIDE

JUDGING FROM OUR tests, laptops with wider-than-average screens have no particular disadvantage compared with standard laptops, unless you count the difficulty of balancing a wide-screen unit on your lap ▶

or finding a carrying case that fits perfectly. For instance, we noticed no significant drain on battery life. In fact, the average battery life in our test group was a respectable 3.9 hours, almost half an hour longer than the average of 3.5 hours posted by laptops tested for our monthly *Top 15 Notebook PCs* review.

And unless you opt for a gargantuan 17-inch wide-screen notebook, which can easily surpass 10 pounds, weight should not be a big concern, either. The average weight of the seven wide screens in our group (not including the 17-incher) was just 6.1 pounds.

Wide-screen notebooks come with the same types of laptop processors and connections as their regular-size counterparts do. The ones we reviewed run the gamut of portables, but our favorites of the group are both HP models: the Compaq Presario V2000, which carries a 14.1-inch screen; and the HP Compaq NC8230, which has a 15.4-inch screen.



FUJITSU'S LIFEBOOK N6010 comes with a remote control that allows you to easily access its varied multimedia capabilities.

We liked almost everything about the Compaq Presario V2000. In fact, we think that it would make the ideal laptop for travel. The V2000's convenient slanted keyboard is easy to type on, and you can connect the machine to HP's Xb2000, an excellent multimedia docking station that's equipped with speakers and a drive bay. Its 6.1-pound weight, 5.8-hour battery life, and compact screen perfectly suit it for hitting the road. A 14.1-inch wide screen is as broad from side to side as a standard 15-inch display and yet it's shorter than a standard 14.1-inch screen, making the Compaq easier to open in tight spaces, such as on an airplane tray table. The V2000's native resolution of 1280 by 768 is just right for squeezing in extra details or documents while keeping icons easily readable.

We liked the Gateway M210S's keyboard and the convenient size of its readable, 14.1-inch screen, too. Like the Compaq's display, it has a native resolution of 1280 by 768, which ensures that you won't have to squint to to see icons or text.

The M210S is lighter than the Presario,

TOP 100 TEST Center

Wide Screens That Go to Great Lengths

OF ALL THE NEW MODELS this month, the Compaq Presario V2000 may be the best wide-screen laptop for road warriors.

	WIDE-SCREEN NOTEBOOK	Features and specifications		Performance	Bottom line
1	Compaq Presario V2000 Best BUY $1348 (★★★★½) find.pcworld.com/47226	• 1.8-GHz Pentium M 745 • 14.1-inch wide screen • 7.0 pounds	• DVD-RW drive • Touchpad pointing device • 802.11g, six-in-one media card reader	• WorldBench 5 score: 75 • Overall design: Good • Tested battery life: 5:48	This sleek, lightweight unit has a bright, readable display, a nice keyboard, good sound, and fantastic battery life.
2	HP Compaq NC8230 $2379 (★★★★½) find.pcworld.com/47228	• 2.0-GHz Pentium M 755 • 15.4-inch wide screen • 7.3 pounds	• DVD-RDM and CD-RW combo drive • Touchpad, eraserhead pointing devices • 802.11g, SD Card slot	• WorldBench 5 score: 85 • Overall design: Good • Tested battery life: 5:11	Classy-looking corporate laptop offers a native resolution of 1680 by 1050 and a quick-launch presentation button.
3	Dell Inspiron 6000 $2285 (★★★★☆) find.pcworld.com/47230	• 2.0-GHz Pentium M 755 • 15.4-inch wide screen • 8.4 pounds	• DVD±RW drive • Touchpad pointing device • 802.11a/g, SD Card slot	• WorldBench 5 score: 89 • Overall design: Good • Tested battery life: 5:07	This desktop replacement has a super-high native resolution of 1900 by 1200, along with great speakers.
4	Gateway M210S $1288 (★★★½) find.pcworld.com/47232	• 1.6-GHz Pentium M 725 • 14.1-inch wide screen • 6.2 pounds	• DVD±RW drive • Touchpad pointing device • 802.11g, SD Card slot	• WorldBench 5 score: 69 • Overall design: Good • Tested battery life: 3:24	Lightweight model offers a cool front-mounted media card slot and a volume wheel, but it has so-so sound.
5	Fujitsu LifeBook N6010 $2459 (★★★½☆) find.pcworld.com/47234	• 3.2-GHz Mobile Pentium 4 538 • 17-inch wide screen • 12.2 pounds	• DVD-RW drive • Touchpad pointing device • 802.11g, two-in-one media card reader	• WorldBench 5 score: 81 • Overall design: Very Good • Tested battery life: 1:57	Large entertainment unit with a built-in TV tuner has the equipment and extra screen space for work and fun.
6	Gateway M460X $2059 (★★★) find.pcworld.com/47236	• 2.1-GHz Pentium M 765 • 15.4-inch wide screen • 8.0 pounds	• DVD-RW drive • Touchpad, eraserhead pointing devices • 802.11g, four-in-one media card reader	• WorldBench 5 score: 87 • Overall design: Good • Tested battery life: 3:23	Slim portable's four USB 2.0 ports are located on the right side—two stacked and two side-by-side.
7	Micro Express 259iA1 $1799 (★★★☆☆) find.pcworld.com/47238	• 2.1-GHz Pentium M 765 • 15.4-inch wide screen • 8.3 pounds	• DVD±RW drive • Touchpad pointing device • 802.11g, SD Card slot	• WorldBench 5 score: 99 • Overall design: Good • Tested battery life: 2:50	Sleek and wedge-shaped, this wide screen has a fashionably stark-looking design but a cranky touchpad.

at 5.3 pounds, and less expensive. However, it lacks the V2000's long battery life and good built-in sound. It would make a terrific starter wide-screen laptop.

GOING WIDER

WIDE SCREENS MEASURING 15.4 inches or more put you at risk of invading your neighbor's airplane tray table. On the positive side, they offer higher resolutions (up to 1920 by 1200 pixels) and impressive width—the same as you'd get with a standard 17-inch laptop's screen. The height is a little less than that of a standard-width 15-inch notebook's screen.

Of the four 15.4-inch wide-screen models we looked at, we liked the HP Compaq NC8230 best. Its native resolution of 1680 by 1050 fits in plenty for you to view, and its 5-plus hours of battery life would carry you through a cross-country flight. Besides offering comfortable dual pointing devices (a touchpad and an easy-to-guide nub), it supports pleasant typing. Travelers will appreciate the unit's 6.3-pound weight and its presentation button for getting talks off to a smooth start.

Unfortunately, keyboard or pointing-device shortcomings plagued the other three 15.4-inch wide screens we looked at. The Dell Inspiron 6000 has a lot to offer: It has the sharpest, most detailed screen of the entire group, with a stunning native resolution of 1920 by 1200, making it ideal for seeing more spreadsheet columns or tiled documents. It also has an attractive and accessible case, and over 5 hours of battery life. We're not sure, however, that we could coexist long-term with the Inspiron 6000's excessively stiff keyboard: We had to type quite forcefully to make sure that we didn't leave the spacebar and other keys undepressed.

The Gateway M460X has an easy-to-read native resolution of 1200 by 800 pixels, but its screen seemed less detailed than the others. Though this sleek model performed well, we had trouble getting the pointing stick to calibrate properly and we found the keyboard a bit mushier than we would have liked.

The Micro Express 259iA1 is a big, thin, stylish 15.4-inch wide-screen model. It's also the fastest performer of the group.

> If seeing more at once horizontally and toggling less appeals to you, a wide screen would be a great investment.

However, the unit we looked at had an unfortunate pointing control problem in our tests: Even after we reset its sensitivity and speed several times, the cursor exhibited flighty behavior. On the other hand, the keyboard was a dream to type on, and this $1799 unit's instant-on DVD feature permits you to play movies without having to launch Windows beforehand.

WIDE-SCREEN ENTERTAINERS

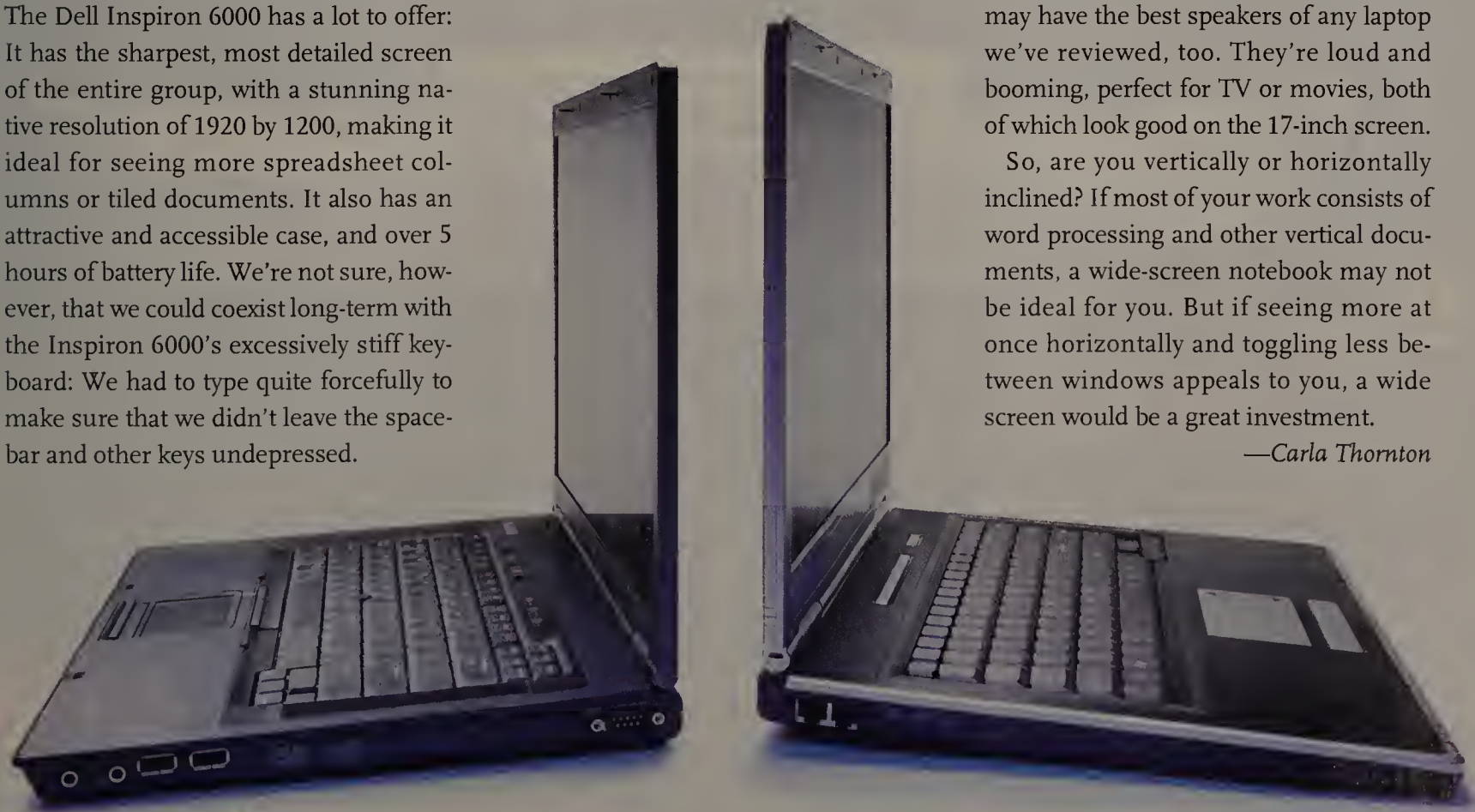
17-INCH WIDE-SCREEN laptops are for people who want maximum-size screens. Many 17-inchers, such as the $2459 Fujitsu N6010 in our group, include a built-in TV tuner. The striking, tritone, 10.2-pound N6010 comes with a blue-hued Media Center–like application that lets you watch, pause, and record live TV and view DVDs without booting Windows. A short coaxial cable adapter is included, along with RCA and S-Video-in ports to hook up peripherals such as a CD player or a camcorder. The keyboard, which has a separate numerical keypad, is very comfortable to type on. The huge screen is beautiful and easy to read, thanks to its native resolution of 1400 by 900 pixels.

Fujitsu's multimedia software, Instant MyMedia, has a few neat features. One is called Browse, which creates thumbnails of all the TV stations the notebook has found, showing freeze frames of the live picture. You can view them before deciding which station to watch. The N6010 may have the best speakers of any laptop we've reviewed, too. They're loud and booming, perfect for TV or movies, both of which look good on the 17-inch screen.

So, are you vertically or horizontally inclined? If most of your work consists of word processing and other vertical documents, a wide-screen notebook may not be ideal for you. But if seeing more at once horizontally and toggling less between windows appeals to you, a wide screen would be a great investment.

—*Carla Thornton*

DESPITE HAVING THE SAME size screen, HP Compaq's NC8230 (left) and Micro Express's 259iA1 differ slightly in height.



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IN THE CHARTS

EDITED BY THE REVIEWS STAFF

New Gaming System Is Tops in Performance and Style

THE SPATE OF news about compact PCs obscures the fact that some systems are getting bigger and more powerful. Take the new ABS Ultimate M6 on the power section of the desktops chart. This behemoth is so heavy that ABS gave it wheels and a cumbersome brake lever to prevent it from rolling away.

The dividends of this computer's size are top-end power and good looks—the case is a futuristic matte silver with a perforated front-panel design. The Ultimate M6 scored 122 in our WorldBench 5 performance tests, the fastest rate recorded to date; plus, the system averaged 259 frames per second in our graphics tests, among the top five scores we've seen for a desktop PC.

HP'S PAVILION A820n has color-coded ports and an eight-in-one media card reader.

The Ultimate M6 supplies plenty of ports—ten USB 2.0 and two FireWire—as well as room for extra hard drives, beyond the 320GB it came configured with. We were also impressed by the Samsung SyncMaster 997DF monitor and the aurally stunning Logitech Z-5500 speakers and Sound Blaster Audigy 2 ZS sound card. At $3699, this system is expensive, but speed and style have their price.

Dell's refresh of the Dimension 8400 took sixth place on the power side of the chart—down from the previous incarnation's number three spot. The slippage was due to increasingly tough competition, in both design and performance, from rival vendors. The main differences between the two generations of 8400s are a faster processor—a 3.6-GHz Pentium 4 660 rather than a 3.6-GHz Pentium 4 560—a dual-format DVD±RW drive, and a slightly lower price ($2799). The new Dimension 8400 performed a tad better in our WorldBench 5 tests: 101 versus 98.

Our new value chart-maker, the HP Pavilion A820n, is a home-entertainment PC rich in features. Most notable is its double-layer, dual-format DVD±RW drive with the new LightScribe CD labeling technology (the first we've seen in a PC). Using the drive, you can "burn" a label onto the top surface of a specially coated CD. (For more on LightScribe, browse to find.pcworld.com/46650.) The Pavilion A820n also offers seven USB and two FireWire ports and a eight-in-one media card reader.

ABS'S ULTIMATE M6, a stylish gaming system, earned our top WorldBench 5 score to date.

The A820n turned in so-so performance results. It scored 84 in our WorldBench 5 tests, and it averaged 59.6 fps in our high-end graphics tests (in the bottom third). Clearly, this value PC, which lacks dedicated graphics memory, is not meant to blow you away while you're playing Doom 3.

PHOTOGRAPHS: MARC SIMON

INSIDE INFO

Portable Music Players

OUR AUDIO-PLAYER chart rounds out a strong showing by the large-capacity Apple IPod Photo with midcapacity performers such as Creative's Zen Micro, Dell's Pocket DJ, and IRiver's H10.

More on the Web

PC WORLD uses its industry-standard benchmarking application, WorldBench 5, to evaluate the performance of desktop PCs, notebooks, and tablet PCs. We run a number of real-world applications performing real-world computing tasks. For more information on the WorldBench 5 tool, visit find.pcworld.com/44262. Go to find.pcworld.com/10860 for more details about *PC World*'s Star Ratings.

The Top 100 Team

FREELANCE WRITERS Sam Jemielity, Andre Kvitka, Cathy Lu, and Scott Plamondon; Contributing Editor Carla Thornton; and *PC World* editors Laura Blackwell, Tracey Capen, Kalpana Ettenson, Rebecca Freed, Melissa J. Perenson, Narasu Rebbapragada, and Alan Stafford contributed to the *Top 100* section this month. Ulrike Diehlmann, Julio Giannobile, Elliott Kirschling, Jeff Kuta, Tony K. Leung, Thomas Luong, and William Wang of the PC World Test Center tested the products reviewed in this section, with further logistical support provided by Julian Weatherby.

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TOP 15 DESKTOP PCs

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/47086 for reviews of all products tested this month and ranked in this chart.

	POWER SYSTEM	Features and specifications [1]		Performance	Bottom line
1	Alienware Aurora 64 5500 Best BUY $3702 (★★★★½ Feb 05) find.pcworld.com/45562	• 2.6-GHz Athlon 64 FX-55 • 320GB drive space (RAID) • DVD±RW, DVD-ROM drives	• 19-inch NEC LCD monitor • 256MB ATI Radeon X800 Pro graphics • Logitech X-530 speakers	• WorldBench 5 score: 110 • Graphics: Outstanding • Design: Outstanding	Blazing performance keeps this well-equipped, nicely priced gaming system at the top of the chart.
2	ABS Ultimate M5-64 $3899 (★★★★½ Feb 05) find.pcworld.com/45558	• 2.6-GHz Athlon 64 FX-55 • 348GB drive space (RAID) • DVD±RW, DVD-ROM drives	• 19-inch Samsung LCD monitor • 256MB EVGA E-GeForce 6800 Ultra graphics • Logitech Z-680 speakers	• WorldBench 5 score: 107 • Graphics: Outstanding • Design: Very Good	Loaded PC has an industrial-strength metal case and a liquid-cooled CPU. Three hard drives in this configuration.
3	Polywell Poly 939N-FX55 $2995 (★★★★½ Apr 05) find.pcworld.com/46714	• 2.6-GHz Athlon 64 FX-55 • 320GB drive space (RAID) • DVD±RW, CD-RW drives	• 19-inch ViewSonic CRT monitor • 256MB NVidia GeForce 6800 Ultra graphics • Creative T7700 7.1 speakers	• WorldBench 5 score: 113 • Graphics: Outstanding • Design: Good	Elegant-looking black-and-silver unit has top-notch performance; CRT monitor keeps the price down.
4	Alienware DHS 5 $5513 (★★★★½ Jan 05) find.pcworld.com/45194	• 2.2-GHz Athlon 64 3500+ • 250GB drive space • DVD±RW/-RAM drive	• 30-inch LG LCD monitor • 128MB ATI Radeon 9800 Pro graphics • Klipsch ProMedia Ultra 5.1 speakers	• WorldBench 5 score: 92 • Graphics: Outstanding • Design: Very Good	Our favorite Media Center PC in a stereo-component style; LG LCD TV accounts for $3499 of the price.
5	ABS Ultimate M6 $3699 (★★★★☆ NEW) find.pcworld.com/46942	• 2.6-GHz Athlon 64 FX-55 • 320GB drive space (RAID) • DVD±RW, DVD-ROM drives	• 19-inch Samsung CRT monitor • 256MB ATI Radeon X850 XT graphics • Logitech Z-5500 speakers	• WorldBench 5 score: 122 • Graphics: Outstanding • Design: Very Good	This ultimate gaming machine earned our top WorldBench 5 score. Comes in an industrial-looking case.
6	Dell Dimension 8400 $2799 (★★★★ NEW) find.pcworld.com/46956	• 3.6-GHz Pentium 4 660 • 320GB drive space (RAID) • DVD±RW drive	• 19-inch Dell LCD monitor • 256MB ATI Radeon XBOO XT graphics • Dell 5650 5.1 speakers	• WorldBench 5 score: 101 • Graphics: Outstanding • Design: Fair	Updated Windows XP Media Center PC has snappy performance, powerful graphics, and an attractive LCD.
7	MPC Millennia 940i Dream Machine $3699 (★★★★☆ Apr 05) find.pcworld.com/46710	• 3.8-GHz Pentium 4 570J • 1050GB drive space (RAID) • DVD±RW, CD-RW drives	• 19-inch MPC LCD monitor • 256MB NVidia GeForce 6800 Ultra graphics • Creative Inspire P7800 speakers	• WorldBench 5 score: 99 • Graphics: Very Good • Design: Good	Well-appointed and fairly quick home-office model has three hard drives, two in a RAID configuration.
	VALUE SYSTEM				
1	Sys Technology MediaMax $1345 (★★★★ Jan 05) find.pcworld.com/45208	• 3.2-GHz Pentium 4 540 • 120GB drive space • DVD±RW drive	• 17-inch Planar LCD monitor • 128MB PNY Verto GeForce FX 5200 graphics • Sys MediaMax speakers	• WorldBench 5 score: 84 • Graphics: Very Good • Design: Good	Looks more like a stereo component than a PC; has stand-alone radio, DVD, and CD options.
2	IBM ThinkCentre A51p $1627 (★★★★☆ Feb 05) find.pcworld.com/45626	• 3-GHz Pentium 4 530 • 160GB drive space • DVD-ROM, CD-RW drives	• 17-inch ThinkVision LCD monitor • 64MB ATI Radeon X300 Pro graphics • Cyber Acoustics CA-3090 speakers	• WorldBench 5 score: 83 • Graphics: Very Good • Design: Good	Tool-less design and advanced security features distinguish this good-looking, all-business black tower.
3	Amax Kloss i915B $1499 (★★★★ Feb 05) find.pcworld.com/45620	• 2.8-GHz Pentium 4 520 • 120GB drive space • DVD-ROM/CD-RW combo drive	• 17-inch AG Neovo LCD monitor • 128MB NVidia GeForce PCX 5750 graphics • AOpen SoundSphere 2.1 speakers	• WorldBench 5 score: 83 • Graphics: Very Good • Design: Good	Shoe-box system with excellent design will look terrific in any setting; see-through speakers match well.
4	Velocity Micro ProMagix PCX $1645 (★★★½☆ Mar 05) find.pcworld.com/46276	• 3.4-GHz Pentium 4 550 • 200GB drive space • DVD±RW, DVD-ROM/CD-RW drives	• 19-inch CTX CRT monitor • 128MB EVGA E-GeForce 6600 graphics • Creative Inspire P5800 speakers	• WorldBench 5 score: 94 • Graphics: Very Good • Design: Very Good	Fast PC is very expandable; all-black aluminum case is attractive. But at this price, you deserve an LCD.
5	CyberPower Gamer Ultra 7500 Elite Best BUY $999 (★★★½ Feb 05) find.pcworld.com/45622	• 2.2-GHz Athlon 64 3200+ • 120GB drive space • DVD±RW drive	• 17-inch AOpen LCD monitor • 256MB NVidia GeForce FX 5700LE graphics • Creative SBS 5.1 560 speakers	• WorldBench 5 score: 91 • Graphics: Very Good • Design: Good	Funky-looking system includes top-mounted USB and audio ports and a pop-up status panel.
6	Polywell Poly Mini-Box 939AX 3200 $1295 (★★★½☆ Apr 05) find.pcworld.com/46718	• 2.2-GHz Athlon 64 3200+ • 200GB drive space • DVD±RW drive	• 17-inch Hyundai LCD monitor • Integrated ATI Radeon Xpress X200 graphics • Creative 5.1 T5400 speakers	• WorldBench 5 score: 85 • Graphics: Fair • Design: Very Good	Stylish black Media Center entertainment model fits easily into tight quarters, but upgrades are limited.
7	MPC ClientPro 414 $1799 (★★★½ Mar 05) find.pcworld.com/45554	• 3-GHz Pentium 4 530 • 80GB drive space • DVD-ROM/CD-RW combo drive	• 17-inch MPC LCD monitor • 64MB ATI Radeon X600 graphics • Speakers built into monitor	• WorldBench 5 score: 79 • Graphics: Outstanding • Design: Good	Small footprint and good performance are a natural fit for space-conscious home and small-office users.
8	HP Pavilion A820n $1200 (★★★½☆ NEW) find.pcworld.com/46946	• 3.2-GHz Pentium 4 540 • 200GB drive space • Double-layer DVD±RW drive	• 17-inch HP LCD monitor • 128MB graphics • Speakers optional	• WorldBench 5 score: 84 • Graphics: Good • Design: Good	Value-price home PC has an eight-in-one media-card reader and a DVD-RW drive with a disc label creator.

FOOTNOTE: [1]Features listings are not exhaustive; hard-drive capacity may represent multiple drives. **CHART NOTES:** Street prices are as of 2/15/05. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. Price is taken into consideration for Best Buy honors only. All tests designed and conducted by the PC World Test Center. All rights reserved.

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TOP 10 DVD DRIVES

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/47490 for reviews of all products tested this month and ranked in this chart.

ALL THE LATEST DVD burners can write to DVD-R and +R at up to 16X, the expected end of the line for write-once DVD. But rewritable and dual-layer burners have room for faster speeds. Three new internal drives debut here, each reflecting recent speed tweaks: The inexpensive Lite-On SOHW-1673S and the Pioneer DVR-A09XL increased their DVD-RW support from 4X to 6X, while the Lite-On and the Sony DRU-720A raised their DVD+RW max from 4X to 8X.

DVD hardware continues to outpace media; we had to test the new drives with 4X discs (for both -RW and +RW), which is probably why we saw little performance improvement. New discs are expected to arrive this spring, but they're likely to be scarce.

Pioneer's drive is the first to offer native support for 6X double-layer DVD+R burning. We observed notable performance improvements with it, even using 2.4X media.

Among external burners, Memorex's new drive delivers the best mix of price and performance; BenQ's drive is also enticing, given its price and promised firmware updates.

MEMOREX'S new drive has FireWire and USB.

	INTERNAL DVD DRIVE	Features and specifications		Performance	Bottom line
1	Plextor PX-716A $125 (★★★★½ Apr 05) find.pcworld.com/46594	• 4X double-layer DVD+R [1] • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 8X DVD+RW, 48X CD-R	• Roxio Easy Media Creator Basic 7.1 software	• Double-layer +R: 27:11 • Single-layer +R: 6:30 • DVD+RW: 11:44	Feature-rich drive provides fine overall performance and 8X DVD+RW. A firmware update supports 6X double-layer burns.
2	Toshiba SD-R5372 $130 (★★★★½ Apr 05) find.pcworld.com/46600	• 5X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 4X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1, BackItUp, and PhotoShow Express) software	• Double-layer +R: 22:24 • Single-layer +R: 5:37 • DVD+RW: 12:49	The best all-around performer on the chart can write to 5X DVD-RAM media. Lower-cost versions are sold without software.
3	Memorex 16x Internal Double-Layer Dual-Format DVD Recorder $120 (★★★★☆ Apr 05) find.pcworld.com/46588	• 4X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 4X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1, BackItUp, and PhotoShow Elite) software	• Double-layer +R: 26:57 • Single-layer +R: 6:15 • DVD+RW: 12:44	This drive is a good value, given its solid performance and jam-packed Nero software bundle, including PhotoShow Elite.
4	Pacific Digital Mach 16 U-30264 $90 (★★★★ Apr 05) find.pcworld.com/46592	• 5X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 4X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1, BackItUp, and PhotoShow Express) software	• Double-layer +R: 22:23 • Single-layer +R: 5:35 • DVD+RW: 12:45	Powerful model uses the same drive mechanism as the Toshiba SD-R5372, but manual is mediocre. Price drops $20 this month.
5	Pioneer DVR-A09XL Best Buy $120 (★★★★☆ NEW) find.pcworld.com/47261	• 6X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 4X DVD+RW, 40X CD-R	• Ulead DVD Movie Factory 3.5 Studio Deluxe, VideoStudio 8.5 SE, and Nova8ackup 7.1 software	• Double-layer +R: 19:18 • Single-layer +R: 6:10 • DVD+RW: 11:51	Fastest drive at writing to DVD+R DL, and it has a stellar software bundle. But on CD-R writes, it was 25 percent behind the leader.
6	Lite-On SOHW-1673S $70 (★★★½ NEW) find.pcworld.com/47250	• 4X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1, BackItUp, and PhotoShow Express) software	• Double-layer +R: 26:53 • Single-layer +R: 6:06 • DVD+RW: 11:49	Bargain-priced drive excels on single-layer +R and +RW writes, and comes with great support policies and documentation.
7	Sony DRU-720A $125 (★★★½☆ NEW) find.pcworld.com/47259	• 4X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 8X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1, BackItUp, and PhotoShow Express) software	• Double-layer +R: 27:18 • Single-layer +R: 6:28 • DVD+RW: 11:54	This model is strong on single-layer writing but slow at writing to double-layer discs. Nero bundle also has Nero Burning ROM SE.
	EXTERNAL DVD DRIVE				
1	Memorex External 16x16 Dual-Format, Double-Layer Recorder Best Buy $170 (★★★★ NEW) find.pcworld.com/47252	• 4X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 6X DVD-RW, 8X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1 and PhotoShow Elite) software	• Double-layer +R: 26:54 • Single-layer +R: 6:13 • DVD+RW: 12:36	A boxy, silver-gray case and good performance distinguish this drive; only unit here with both FireWire 400 and USB 2.0.
2	BenQ EW1621 $150 (★★★½☆ NEW) find.pcworld.com/47246	• 2.4X double-layer DVD+R [1] • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 4X DVD+RW, 40X CD-R	• Sonic RecordNow 7.2 and InterVideo WinDVD Creator 2 software	• Double-layer +R: 46:12 • Single-layer +R: 6:19 • DVD+RW: 11:45	As configured, this unit performed modestly. BenQ says it will have a firmware update to boost both +RW and DL +R write speeds.
3	I/O Magic 16x DVD±RW/±R Dual Format/Double Layer $150 (★★★½ NEW) find.pcworld.com/47248	• 4X double-layer DVD+R • 16X DVD-R, 16X DVD+R, 4X DVD-RW, 8X DVD+RW, 48X CD-R	• Nero Express 6.3 (with NeroVision Express 2.1, BackItUp, and PhotoShow Express) software	• Double-layer +R: 27:15 • Single-layer +R: 5:50 • DVD+RW: 12:17	Strong single-layer writer earned mediocre scores on double-layer burns. I/O Magic's Web site is weak on driver updates and docs.

FOOTNOTE: [1] Vendor will be releasing a firmware upgrade to boost double-layer speed. **HOW WE TEST:** For full methodology, see find.pcworld.com/47492. We test drives using media supplied by the vendor or by Verbatim. Write speeds are (in listed order) the time (in minutes:seconds) required to write 7.9GB to double-layer DVD+R and 4.35GB to single-layer DVD+R using the drive's bundled mastering software, and then the combined time to format a blank rewritable DVD and copy 3.4GB of data to that disc. **CHART NOTES:** Prices given are street prices as of 2/25/05. Price is taken into consideration for Best Buy honors only. See find.pcworld.com/47491 for more details on software bundles, and find.pcworld.com/1086D for more on *PC World's* Star Ratings.

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TOP 10 AUDIO PLAYERS

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/47456 for reviews of all products tested this month and ranked in this chart.

OUR EXPANDED CHART of portable audio players ranks devices in two groups: large-capacity units, which have room for at least 20GB of files, and smaller, midcapacity models, which accommodate 5GB or 6GB of content.

Both of the top large-capacity players are from Apple Computer. The 30GB IPod Photo—the most expensive unit in this group at $349—offers a terrific color LCD screen that enables you to look at images synced from your PC's photo library. It also delivers improved battery life over previous IPods, plus quick operations, intuitive menus, and easy-to-create playlists. (A 60GB version costs $100 more.) Closely following the IPod Photo in the rankings is its sibling, the 20GB IPod, which shares the same impressive features except that it lacks a color screen and image-playback support. The third-place IRiver H320 used to be a good deal compared with the IPod Photo; but though IRiver has cut the H320's price since the device first appeared, Apple has reduced prices on IPod Photos more substantially.

APPLE'S IPod Photo displays pics.

Our midcapacity leaders are Rio's Carbon and a new version of Apple's IPod Mini. In a tight race, the Carbon edges the Mini, owing in part to its lighter case. The Carbon also has a built-in microphone for recording memos or your own singing; the IPods require a third-party add-on for voice recording. The 6GB Mini improves on the price-per-gigabyte ratio of the first Mini, and it claims 18 hours of battery life, more than double the former model's figure. Apple still sells its 4GB unit, which costs $199.

	LARGE-CAPACITY PLAYER	Features and specifications		Performance	Bottom line
1	Apple IPod Photo Best BUY $349 (★★★★½ NEW) find.pcworld.com/47462	• 30GB capacity • ITunes software • 5.9 ounces	• Photo viewing, optional dock • AAC, AIF, Apple Lossless, Audible, BMP, GIF, JPEG, MP3, TIFF, WAV	Ease of use: Very Good Features: Outstanding	This elegant player gives you all the advantages of an IPod, and it lets you tote your favorite pictures, too.
2	Apple IPod $280 (★★★★½ NEW) find.pcworld.com/43626	• 20GB capacity • ITunes software • 5.6 ounces	• Optional dock • AAC, AIF, Apple Lossless, Audible, MP3, WAV	Ease of use: Very Good Features: Good	This unit is also a portable hard drive. It has intuitive menus, and simplifies playlist creation. Battery life could be better.
3	IRiver H320 $275 (★★★★☆ Dec 04) find.pcworld.com/47460	• 20GB capacity • Windows Media Player software • 7.3 ounces	• Photo viewing, built-in FM tuner • ASF, JPEG, MP3, Ogg Vorbis, WMA	Ease of use: Good Features: Very Good	Great audio, dazzling color display, FM radio, and photo viewing partly offset the H320's relative bulkiness.
4	Creative Zen Touch $240 (★★★½ Dec 04) find.pcworld.com/4423B	• 20GB capacity • Creative MediaSource, Creative Media Explorer software • 7.0 ounces	• Equalizer, optional FM radio • MP3, WAV, WMA	Ease of use: Very Good Features: Very Good	A well-made MP3 player, the Zen Touch nonetheless lacks several features that could help it rival the IPod.
5	Archos Gmini XS200 $225 (★★★½☆ Dec 04) find.pcworld.com/4745B	• 20GB capacity • ArcLibrary software • 4.3 ounces	• CompactFlash card slot, optional FM tuner • JPEG, MP3, WAV, WMA	Ease of use: Good Features: Good	This ultracompact, no-frills unit has great sound, lets you create playlists on the go, and allows photo storage.
	MIDCAPACITY PLAYER				
1	Rio Carbon Best BUY $199 (★★★★½ Dec 04) find.pcworld.com/43B70	• 5GB capacity • Rio Music Manager software • 3.2 ounces	• Equalizer • Audible, MP3, WMA	Ease of use: Very Good Features: Very Good	This sleek, ultracompact MP3 player has a terrific, innovative design, a simple interface, and a low price.
2	Apple IPod Mini $249 (★★★★½ NEW) find.pcworld.com/47457	• 6GB capacity • ITunes software • 3.6 ounces	• Optional dock • AAC, AIF, Apple Lossless, Audible, MP3, WAV	Ease of use: Very Good Features: Good	Available in spring colors, the Mini is flashier than the bigger IPods. Its battery life is even longer than the first Mini's.
3	Dell Pocket DJ $199 (★★★★ Feb 05) find.pcworld.com/45676	• 5GB capacity • Musicmatch software • 4.4 ounces	• Equalizer • MP3, WAV, WMA	Ease of use: Very Good Features: Fair	The scroll dial and Home and Back buttons offer speedy navigation. More capacity than the 4GB IPod Mini for the same price.
4	IRiver H10 $260 (★★★★☆ Feb 05) find.pcworld.com/47461	• 5GB capacity • Windows Media Player software • 3.4 ounces	• Photo viewing, built-in FM tuner • ASF, JPEG, MP3, WMA	Ease of use: Very Good Features: Very Good	Versatile player sports a friendly interface on its color screen, making it a lower-capacity competitor to Apple's IPod Photo.
5	Creative Zen Micro $220 (★★★½ NEW) find.pcworld.com/47459	• 5GB capacity • Creative MediaSource, Creative Media Explorer software • 3.8 ounces	• Built-in FM tuner, voice recorder, equalizer • MP3, WAV, WMA	Ease of use: Good Features: Very Good	Despite some rough edges, this highly portable player is a solid choice. Includes FM radio recording and playback.

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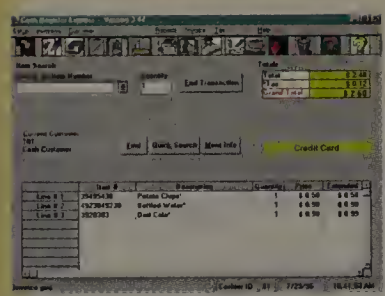

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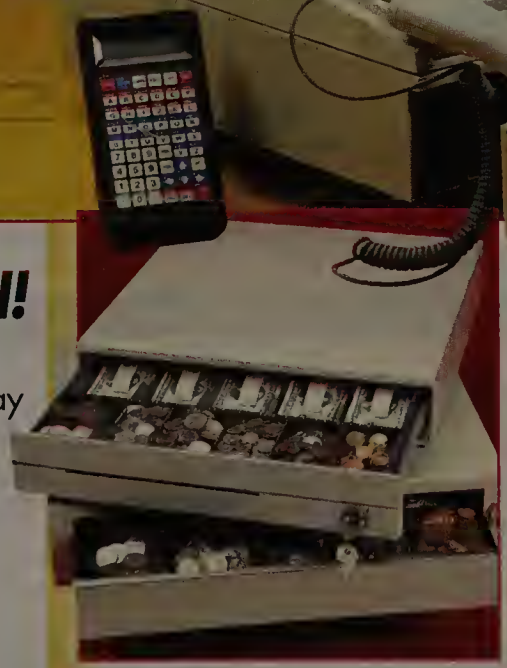

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TOP 10 DIGITAL CAMERAS

★ Products in this chart are ordered by star rating. Visit find.pcworld.com/47172 for reviews of all products tested this month and ranked in this chart.

FIVE MEGAPIXELS OR HIGHER is now de rigueur for point-and-shoot digital cameras. Of the six models we tested this month, only one has a CCD less than 5 megapixels: Canon's 3.2-megapixel PowerShot A510. With a modest number of advanced controls and the ability to use optional lenses, this $200 model could be a great starter camera for cash-strapped shutterbugs. The A510's combination of power and price earns it Best Buy laurels.

HP's 6.2-megapixel Photosmart R717 performed the best in our image-quality tests. At its default settings, it took sharp, pleasing—though slightly oversaturated—images. Its image advice function weighs in on shots taken, making photo playback a photography lesson. Excellent for an entry-level user, the R717 is also the most affordable 6-megapixel model here.

Sony's pricey, 5.1-megapixel Cyber-shot DSC-T33 wedges a big, 2.5-inch LCD into a case less than 0.75 inch thick. Olympus's Stylus 500 matches the DSC-T33's LCD screen size but outdoes it in number of scene mode settings—whatever you're trying to shoot, the Stylus probably has an automatic setting for it.

SONY'S DSC-T33 is easy to use.

The Casio QV-R62 is a pretty thing only slightly thicker than a pack of cards, but its overexposed shots and short battery life left us cold. Fujifilm's tiny FinePix F450—less than 3 inches in height and width—took adequate but slightly dark shots.

	POINT-AND-SHOOT CAMERA	Features and specifications[1]		Performance	Bottom line
1	Nikon Coolpix 4800 $400 (★★★★☆ Jan 05) find.pcworld.com/45116	• 4.0 megapixels • 36mm to 300mm zoom • 15 scene modes	• 640 by 480 video • Rechargeable battery • 10.6 ounces	Image quality: Very Good Ease of use: Good Battery life: Very Good	Ideal for snapshots and travel, the moderate-size 4800 has an appealing price for a camera with an 8.3X optical zoom lens—the longest on the chart.
2	Kodak EasyShare DX7630 Zoom Best BUY $350 (★★★★ July 04) find.pcworld.com/42264	• 6.1 megapixels • 39mm to 117mm zoom • 16 scene modes	• 320 by 240 video • Rechargeable battery • 9.6 ounces	Image quality: Very Good Ease of use: Very Good Battery life: Very Good	A dazzling 2.2-inch LCD and a solid selection of advanced controls (such as aperture- and shutter-priority) highlight this relatively small camera.
3	HP Photosmart R717 $299 (★★★★☆ NEW) find.pcworld.com/47128	• 6.2 megapixels • 39mm to 117mm zoom • 12 scene modes	• 320 by 240 video • Rechargeable battery • 5.8 ounces	Image quality: Very Good Ease of use: Very Good Battery life: Good	Unit builds on the popular Photosmart R707's best points: image advice, extensive help menus, and in-camera red-eye reduction.
4	Canon PowerShot S60 $449 (★★★★ Oct 04) find.pcworld.com/43541	• 5.0 megapixels • 28mm to 100mm zoom • 5 scene modes	• 640 by 480 video • Rechargeable battery • 10.0 ounces	Image quality: Very Good Ease of use: Very Good Battery life: Good	Canon gave the S60 a wider-angle lens than most point-and-shoots have. The camera is fairly bulky, but you get lots of creative controls.
5	Casio Exilim EX-Z55 $400 (★★★★☆ Jan 05) find.pcworld.com/45122	• 5.0 megapixels • 35mm to 105mm zoom • 23 scene modes	• 320 by 240 video • Rechargeable battery • 5.6 ounces	Image quality: Very Good Ease of use: Good Battery life: Outstanding	Easily pocketable camera has a large, 2.5-inch LCD and scene modes for all occasions; connects to a PC via an included docking station.
6	Olympus C-60 Zoom $350 (★★★½ Aug 04) find.pcworld.com/42830	• 6.1 megapixels • 38mm to 114mm zoom • 6 scene modes	• 320 by 240 video • Rechargeable battery • 7.1 ounces	Image quality: Outstanding Ease of use: Good Battery life: Good	Powerful, fairly compact model has a fine selection of semiautomatic and full-manual exposure modes, but it could be easier to use.
7	Sony Cyber-shot DSC-T33 $450 (★★★½☆ NEW) find.pcworld.com/47112	• 5.1 megapixels • 38mm to 114mm zoom • 9 scene modes	• 640 by 480 video • Rechargeable battery • 5.3 ounces	Image quality: Good Ease of use: Very Good Battery life: Fair	Slender, silvery beauty sports easy-to-understand controls and an impressive 2.5-inch LCD. Colors could be more accurate, though.
8	Canon PowerShot A510 Best BUY $200 (★★★½ NEW) find.pcworld.com/47090	• 3.2 megapixels • 35mm to 140mm zoom • 13 scene modes	• 640 by 480 video • Two AA batteries • 9.6 ounces	Image quality: Good Ease of use: Good Battery life: Fair	Compact, metal-bodied unit boasts some advanced controls and accepts optional lenses. A bargain, given its feature set.
9	Sony Cyber-shot DSC-L1 $299 (★★★½☆ Apr 05) find.pcworld.com/46566	• 4.1 megapixels • 32mm to 96mm zoom • 7 scene modes	• 640 by 480 video • Rechargeable battery • 5.1 ounces	Image quality: Good Ease of use: Fair Battery life: Good	Trim, smartly designed model comes in four colors. Has no optical viewfinder, and the tiny joystick is a bit hard on the thumb.
10	Olympus Stylus 500 $400 (★★★ NEW) find.pcworld.com/47088	• 5.0 megapixels • 35mm to 105mm zoom • 21 scene modes	• 320 by 240 video • Rechargeable battery • 6.0 ounces	Image quality: Good Ease of use: Good Battery life: Good	Sleek camera's big, bright LCD is easy to use even in direct sunlight; but some test exposures were dark, and colors seemed cold.

FOOTNOTE: [1]Resolutions are expressed in effective pixels, zoom range (focal length) is identified as 35mm equivalent, and camera weights include batteries. The designation "Rechargeable battery" refers to a lithium ion battery unless otherwise noted; AA batteries are alkaline. Video capability includes audio. **HOW WE TEST:** To gauge picture quality, we take a series of shots, with and without flash, at the camera's highest resolution and default automatic settings. We photograph a complex still life and a mannequin to see how well each camera captures details and subtle colorings such as skin tones. A panel of judges reviews the on-screen and printed photos and assigns image-quality scores to them; we then average those scores. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** Prices given are street prices as of 2/25/05. Star ratings are based on picture quality, ease of use, features, battery life, and support, but not price. Price is taken into consideration for Best Buy honors only. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

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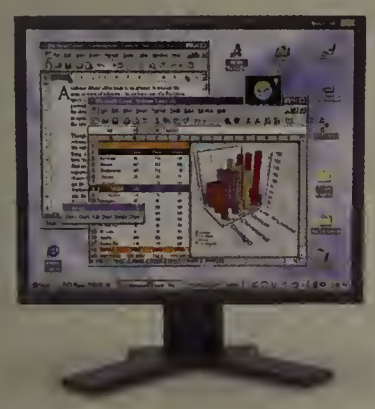
MORE REVIEWS

MISSED AN ISSUE OF *PC World* or passed your copy along to a friend? Here's a recap of *Top 100* topics from previous issues. To read reviews of the products listed in these charts, go online and type in the *PC World* Find-It URL from the top of each chart. Next month in the *Top 100*, we'll look at point-and-shoot digital cameras and multifunction laser printers, and our Spotlight review will cover shoe-box–size PCs. Also look for features on ruggedized products and PC utilities.



EIZO'S FlexScan L768 has advanced screens settings and a high price ($800).

EPSON'S Perfection 4180 Photo captured excellent image quality at good speeds.

CANON'S Pixma IP4000R comes with an 802.11g wireless connection.

19-INCH LCD MONITORS

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2	Samsung SyncMaster 920t (★★★★ Apr 05) find.pcworld.com/46538	
3	Dell UltraSharp 1905FP Best BUY (★★★★☆ Jan 05) find.pcworld.com/45204	
4	ViewSonic VP912b Best BUY (★★★★ Apr 05) find.pcworld.com/44986	
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10	AG Neovo X-19AV (★★★½ Jan 05) find.pcworld.com/44970	

From the April 2005 Issue

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2	Epson Perfection 4180 Photo (★★★★☆ Mar 05) find.pcworld.com/46366	SMALL-OFFICE SCANNER
3	Epson Perfection 2480 Photo (★★★★ Sept 04) find.pcworld.com/43114	SMALL-OFFICE SCANNER
4	HP Scanjet 5550c (★★★½☆ Apr 03) find.pcworld.com/34406	SMALL-OFFICE SCANNER
5	Microtek ScanMaker i320 (★★★ May 04) find.pcworld.com/41543	SMALL-OFFICE SCANNER
1	Canon CanoScan 9950F Best BUY (★★★★½ Mar 05) find.pcworld.com/46362	CORPORATE SCANNER
2	HP Scanjet 8200 (★★★★ Oct 03) find.pcworld.com/37382	CORPORATE SCANNER
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4	HP Scanjet 5590 (★★★½ Sept 04) find.pcworld.com/43112	CORPORATE SCANNER
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3	Canon Pixma IP4000R Best BUY (★★★★☆ Apr 05) find.pcworld.com/46498	PHOTO PRINTER
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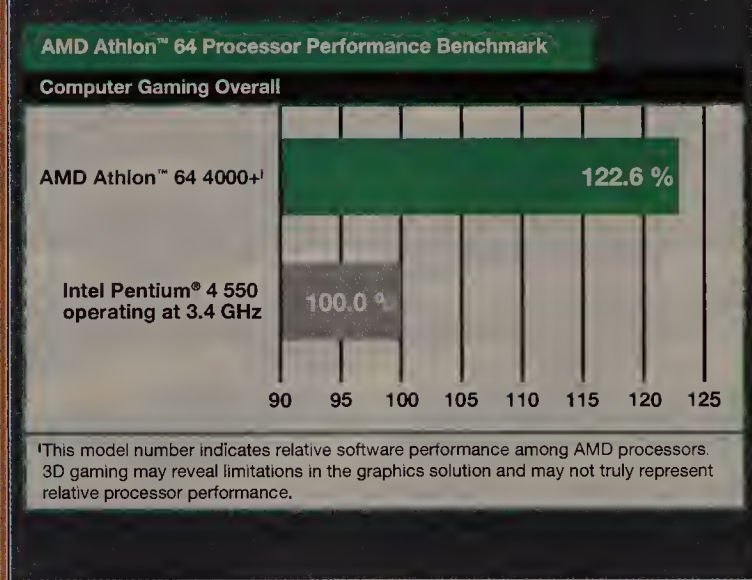

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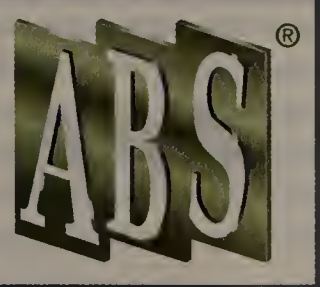

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HERE'S HOW

EDITED BY REBECCA FREED, AOIFE McEVOY, AND DENNIS O'REILLY

INTERNET TIPS

SCOTT SPANBAUER

It's Time to Update Your Internet Security Arsenal

RIGHT OUT OF THE BOX, your PC is almost entirely unprotected from the huge array of Internet-borne attacks. If you connect to the Internet and simply hope for the best, not only are you susceptible to data loss, identity theft, and fraud, but your machine could become a launching pad for attacks against other computers. Securing your system is no longer optional—it's a matter of survival.

Protecting your PC from Internet attacks requires a multilayered approach: Keep Windows and all other software updated, use a safe browser, and make sure your antivirus software is properly configured, regularly updated, and certified effective. You also need a bidirectional firewall program (and a hardware-based firewall, if possible), as well as at least one anti-spyware program. Fortunately, all of these tools are available for free (except the hardware firewall, which is now included with most routers). Here's our 2005 security checklist.

UPDATE YOUR SOFTWARE

BECAUSE IT'S EASY TO forget to update your software, many programs include an automatic-update mechanism. Lots of PC users report conflicts and other problems after installing Windows patches and service packs, but the protection these fixes provide from known exploits (like the infamous Blaster virus that struck in the summer of 2003) is worth the risk. To enable automatic updates in Windows XP with Service Pack 2, right-click *My Computer*, click *Properties•Automatic Updates*, select *Automatic (recommended)*, set a time for the updates (or accept the default), and click *OK*.

Windows isn't the only place where automatic updates can save your bacon. Most antivirus programs also update automatically—all you have to do is provide an Internet connection and keep automatic updates enabled in the program. Firewalls, too, occasionally suffer from flaws and exploits that require regular patching. Zone Labs' free ZoneAlarm firewall software usually notifies users when such an update is available. And at least one browser—the Mozilla Foundation's Firefox—notifies you of available updates. Other programs require that you check for updates manually via a menu command, or by checking the vendor's Web site for a patch or a new version.

ANTIVIRUS: NOW MANDATORY

FOR YEARS I USED PCs without antivirus software installed. I was smart enough to spot a dangerous attachment, right? Unfortunately, flaws in Internet Explorer, Outlook, Java, and other technologies that dovetail with your e-mail program mean that a properly crafted e-mail message

ILLUSTRATION: CHRIS GALL

158 INTERNET TIPS
Update the protection for your PC and personal data with the 2005 edition of our free Internet security toolkit.

162 WINDOWS TIPS
Most of your standard image-editing chores can be accomplished for free using Windows' Picture and Fax Viewer.

164 HARDWARE TIPS
Recover erased or damaged files from your hard drive; keep devices attached to a USB hub adequately powered.

166 STEP-BY-STEP
Get the best picture possible from any TV—whether high-definition or standard—with a $50 calibration utility.

168 ANSWER LINE
Keep your system's ports hidden from attackers by reconfiguring your router; banish Windows' 'New program' message; save paper with a free font-printing tool.

166

FIGURE 1: BEAT THE HIGH COST of virus protection by downloading Grisoft's capable, free AVG antivirus utility.

could install and execute a virus on your PC without much action on your part—all you'd have to do is read the message.

A *virus* (a malicious program file you download to your PC), *worm* (a program that sneaks onto your PC without a file download), or *Trojan horse* (a malicious program that piggybacks onto or masquerades as a legitimate program) can enter your PC in several different ways, but e-mail is the most common means of infection. You can pay dearly for a subscription to commercial antivirus programs: Last year, *PC World* picked Trend Micro's $50 PC-cillin Internet Security suite as our Best Buy. However, I have used two freebies—Grisoft's AVG Free Edition (see **FIGURE 1**) and Alwil's Avast 4 Home Edition—for several years, with great results. The programs are unobtrusive, and they automatically receive frequent virus-database updates. Both also received a thumbs-up from antivirus testing outfits ICSA Labs and Virus Bulletin.

BEEF UP THE BROWSER

UNTIL RECENTLY, one browser was the same as the next. PC users are waking up from their complacency about Microsoft's Internet Explorer browser, however. IE's ActiveX technology permits Web sites (including Web-based e-mail messages crafted in HTML) to install and run programs on your machine—exactly what the virus, Trojan horse, worm, and browser hijacker writers are trying to do. Not surprisingly, many threats to PC security rely on ActiveX.

Microsoft has tightened ActiveX's security, especially in Windows XP's SP2, but new holes continue to crop up, often after malware exploiting them appears online. Microsoft doesn't provide all of these IE security updates for earlier versions of Windows, however, leaving users of Windows 2000, Me, and 98 vulnerable to ActiveX exploits.

To avoid ActiveX dangers, install an IE alternative—it won't be vulnerable to ActiveX attacks—and set it as your default browser. (See February's "The New Web Challengers" at find.pcworld.com/46244 for a comparison of Firefox, Mozilla, IE, Netscape, and Opera.) Or simply disable IE's support for ActiveX: Open IE and choose *Tools•Internet Options•Security•Custom Level*, scroll to 'Run ActiveX controls and plug-ins', select *Disable*, and click *OK•Yes•OK* (see **FIGURE 2**).

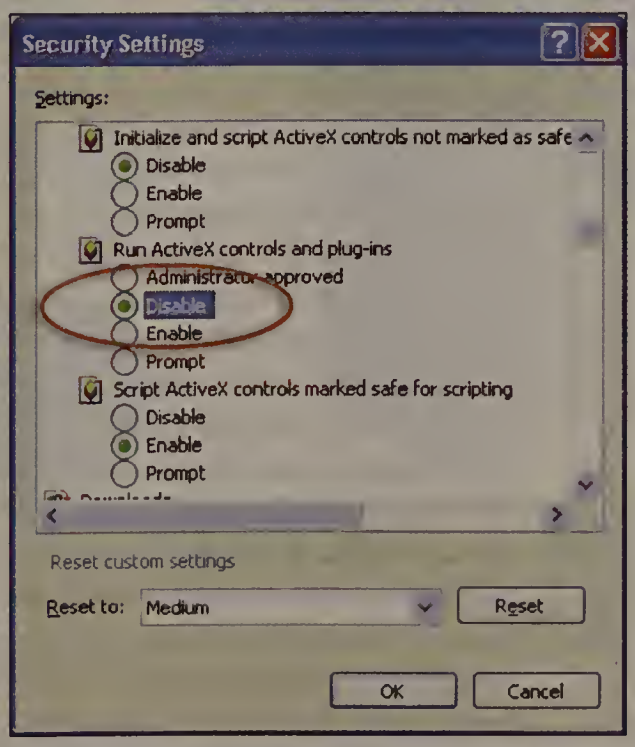

FIGURE 2: HEAL IE'S Achilles' heel by stopping the browser from loading ActiveX controls and plug-ins.

Disabling ActiveX prevents you from viewing Web sites that rely on it, such as Microsoft's own Windows Update site. To get these sites to work, add them to IE's Trusted Sites list: Click *Tools•Internet Options•Security*, choose *Trusted Sites*, click *Sites*, and enter the URLs one at a time. Uncheck *Require server verification (https:) for all sites in this zone*, and click *OK*.

DOUBLE UP YOUR FIREWALLS

FIREWALLS KEEP THE BAD guys out of your computer by shutting the thousands of doorways the machine opens through your Internet connection. Depending on how your system is configured, these doors could be invisible (no response given when the remote system comes knocking), closed but still visible to the remote systems (thereby confirming the presence of a PC at your Internet address), or wide open (the remote system can come right in). A good firewall protects you from these inbound attacks, while also monitoring the applications running on your PC when they make outbound connections to remote systems. (Trojan horse programs, spyware, and other malware that sneaks onto your PC often ▶

employ your Internet link to connect clandestinely to remote servers.)

Windows XP's firewall monitors only inbound connections, offering no protection from malware already on your PC. The latest versions of my favorite free firewalls—Kerio Personal Firewall, Outpost Firewall Free, Sygate Personal Firewall, or ZoneAlarm—are all effective, so if one conflicts with your system, try another.

If you have a broadband Internet connection, use a hardware-based firewall in addition to a software version. Many cable and DSL modems and routers—wireless routers included—have a firewall that you can configure from your PC. Because these hardware firewalls are external to your system, they can't monitor which apps are opening outbound connections, so they can't replace a software firewall running on the PC. However, they do keep incoming attacks off your local network, and they can shield your machine's IP address from the outside world, further protecting you from external attacks.

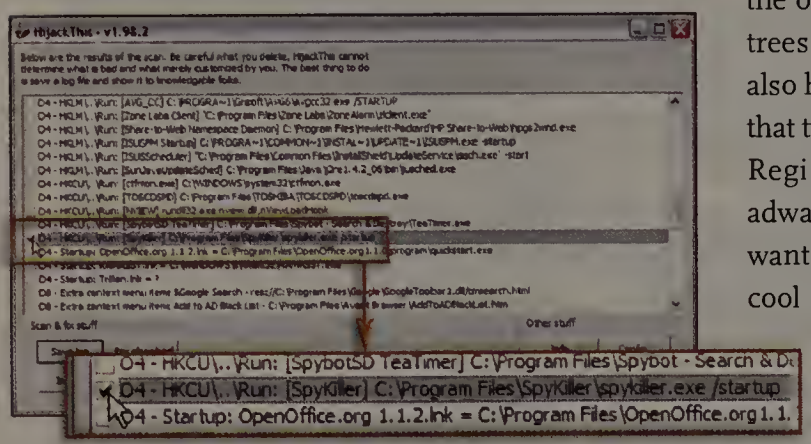

FIGURE 3: USE HIJACKTHIS to find spyware that even Ad-Aware and Spybot can't nail.

ANTI-SPYWARE, TOO

SPYWARE IS A GENERIC term for a range of programs that monitor your Web activity and then inundate you with targeted pop-up ads (adware), or that look for personal information, log-in names, and passwords that the program then forwards to a server or e-mail account (spyware). Adware may or may not provide a useful service—search toolbars are a common variation—and the programs are often bundled with other free downloads, such as file-sharing utilities. See April's "Spyware Stoppers" at find.pcworld.com/46716 for more on spyware fighters.

Aside from swearing off Grokster, Kazaa, IMesh, and other spyware-laden software, you can avoid adware and spyware by using a reputable anti-spyware utility. I say *reputable,* because many free spyware removers can do more harm than good. For more on evil anti-spyware tools, visit find.pcworld.com/46194 to read "Poor Defenders" from last December's issue, and find.pcworld.com/46196 for last August's *Internet Tips* column.

I recommend Lavasoft's Ad-Aware SE (formerly called simply Ad-Aware) and Safer Networking's Spybot Search & Destroy, both of which are free. Each of these programs scans your hard disk and the Windows Registry for traces of known spyware and adware, and then removes the offending files and Registry trees. Spybot Search & Destroy also has a memory-resident tool that traps attempts to change the Registry (a typical spyware or adware activity) and asks if you want to allow the changes. Javacool Software makes two other free memory-resident utilities that prevent many kinds of spyware from loading into memory in the first place: SpywareBlaster blocks known ActiveX spyware from installing, and SpywareGuard scans downloaded files for known spyware payloads.

Unlike with antivirus programs, which tend to conflict with each other, it's a good idea to use several spyware removers. But even if you use all of these excellent tools, you may not be able to detect and remove every bit of spyware bogging down your PC. To get every last parasite, scan your system using Merijn Bellekom's HijackThis utility. HijackThis isn't for novices—it produces a log of browser add-ons and related Registry settings you must then sort through to choose which ones to disable (see **FIGURE 3**). But the log does not differentiate between malware and nonmalware, and disabling the wrong thing could cripple your system. Fortunately, a growing cadre of dedicated anti-spyware volunteers that you'll find at several Web forums will scan your HijackThis logs for you, and tell you what to kill and what to keep. Browse to find.pcworld.com/46238 to view Bellekom's own list of forums for log-entry interpreters. ■

Send your questions and tips to nettips@spanbauer.com. We pay $50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. *Scott Spanbauer is a contributing editor for* PC World.

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Free Security Toolbox

KEEP YOUR SYSTEM and data safe by using our favorite no-cost tools for securing your PC against Internet evils.

FIREWALLS

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Outpost Firewall Free: Agnitum's no-frills app. 2.7MB; find.pcworld.com/46216

Sygate Personal Firewall 5.6: Bidirectional. 8.8MB; find.pcworld.com/46220

ZoneAlarm 5.5: The free version also scans e-mail for dangerous .vbs scripts. 6.3MB; find.pcworld.com/46222

ANTIVIRUS

Avast 4 Home Edition: Alwil's free app for home and noncommercial users. 8.2MB; find.pcworld.com/46227

AVG Antivirus Free Edition: Grisoft's program for noncommercial home users. 9.7MB; find.pcworld.com/46224

ANTI-SPYWARE

Ad-Aware SE Personal Edition: Lavasoft's pioneering free (for noncommercial use) spyware hunter is still one of the best. 2.5MB; find.pcworld.com/46229

HijackThis 1.98: Merijn Bellekom's not-for-novices adware/spyware detector/remover. 183KB; find.pcworld.com/46238

Spybot Search & Destroy 1.3: Patrick M. Kolla (of Safer Networking) is waging a one-man war against spyware. 4.2MB; find.pcworld.com/46230

SpywareBlaster 3.2: Javacool Software's memory-resident spyware blocker. 2.1MB; find.pcworld.com/46234

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CISCO SYSTEMS

WINDOWS TIPS

SCOTT DUNN

SAVE PAPER WHEN PRINTING PHOTOS | OPEN MANY IMAGE FILES AT ONE TIME | A BETTER QUICK LAUNCH TOOLBAR

Picture This: Windows' Hidden Image Viewer

Windows 2K XP 98 ME

WHEN YOU double-click a .bmp, .gif, .jpg, .tif, or other image file in Windows Explorer or in any folder window, the file opens in the Windows Picture and Fax Viewer by default. If you prefer an image viewer with more functionality, this accessory may be more annoying than helpful. After all, the utility doesn't even provide a menu bar to help you figure out what features (if any) it has! But don't be too quick to dismiss the Picture and Fax Viewer. Some of its best features are hidden beneath its seemingly simple interface. I'll show you how to get the most out of these undocumented gems.

Launch the Viewer from an icon: The fastest way to open the Picture and Fax Viewer is to place a shortcut to the program on your desktop, Quick Launch toolbar, or Start menu. First, open the folder in which you want the shortcut to appear. For example, if you want to create a Viewer icon on your Quick Launch bar, right-click the bar (but not an icon) and choose *Open Folder*. Right-click an empty part of the folder (or the desktop, if that's where you want the shortcut), and choose *New•Shortcut*. In the Create Shortcut wizard, type **rundll32.exe %SystemRoot%\system32\shimgvw.dll,ImageView_Fullscreen** (see **FIGURE 1**) and click *Next*. Enter a name for the shortcut, such as **Picture Viewer**, and click *Finish*.

FIGURE 1: LAUNCH WINDOWS' Picture and Fax Viewer utility from a custom shortcut by entering the appropriate command line.

If you don't like the plain-Jane default icon, right-click it and select *Properties*. In the Shortcut tab, click *Change Icon*. Choose *Look for icons in this file*, type the path to shimgvw.dll (**%SystemRoot%\system32\shimgvw.dll** should work on any system), and press **<Enter>**. If you dislike the selection, type **% SystemRoot %\system32\shell32.dll** and look for a suitable icon in that file (see **FIGURE 2**). After selecting an icon, click *OK* twice.

Now whenever you want to launch the Picture and Fax Viewer, simply click or double-click the icon in the Quick Launch bar or on the desktop, or from the Start menu. When you do, the window will state 'No preview available'; but just drag any image file into the window. To work with multiple files, drag all of them into the window and then use the Next and Previous buttons on the far left of the toolbar at the bottom of the window to cycle through the images (alternatively, you can use your keyboard's left and right arrow keys to change them).

Bonus tip: If you use the Picture and Fax Viewer to open just one file (either by dragging it into the window or by right-clicking it and choosing *Open With•Windows Picture and Fax Viewer*), you can use the Next and Previous buttons to view other photos in the same folder. But if you want to work with multiple files in different folders, choose *Start•Search•For Files and Folders*, **<Ctrl>**-select in the Search Results window the ones you want to view, and drag them all into the Viewer.

Print multiple photos on a single page: If you want to print several small images—such as a page of wallet-size photos of your kids, a pair of 5-by-7-inch prints from your wedding, or thumbnails of images from a single event—you probably don't want to waste expensive photo paper printing one picture per page. But before you run out to buy a photo editing program or other utility to manage your image printing, why not give the Picture and Fax Viewer a try?

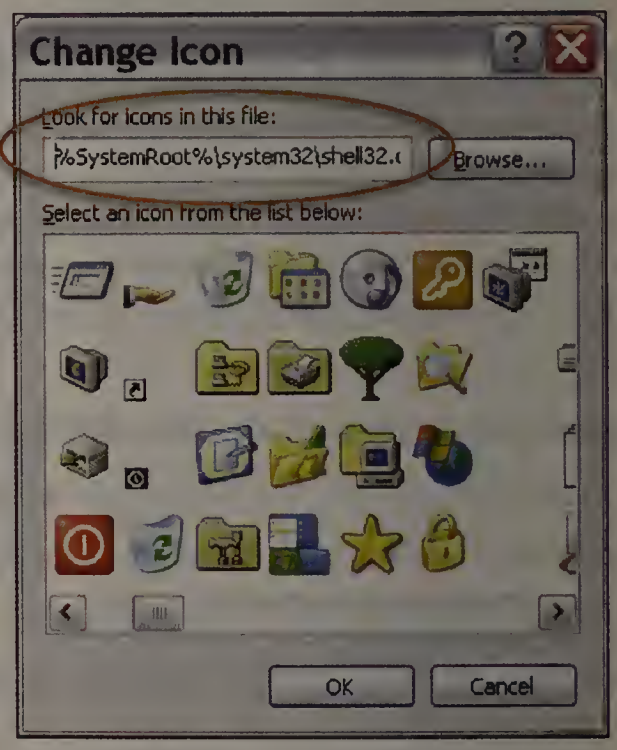


FIGURE 2: CHOOSE AN EASY-TO-SPOT icon for your custom Picture and Fax Viewer shortcut.

Start by using one of the techniques described above to open one or more photos. Note that if you open a single photo, the wizard will later give you the option to print every image in the same folder. If you'd rather see only a limited selection, drag the desired pictures into the Viewer as discussed in the previous tip.

After the image or images have loaded, click the printer icon at the bottom of the Viewer, or press **<Ctrl>-P**. In the Photo Printing Wizard, click *Next*. You'll see all

the photos in the current folder or those you dragged to the Viewer. Use the check boxes in the corner of each thumbnail to select the files to print, and click *Next*. Choose your printer (or go with the default selection) and click *Next* again.

You'll find a host of hidden options in the Layout Selection screen. Simply scroll through the list of thumbnail samples to find the best arrangement for your photos. You can even mix and match layouts if you want. For example, if you would like five small photos of each of the seven pictures that you need to print, select *Contact sheet* from the 'Available layouts' list and type the number **5** in the 'Number of times to use each picture' box underneath. The right side of the wizard will show you a preview of the layout with the actual photos you selected (see **FIGURE 3**). The options for smaller prints rotate your pictures on their sides to make the best fit on the paper. Look very carefully at the preview of these small images, because the wizard will crop the edges of photos that don't quite fit the proportions of the specified page size. Once you've selected your layout, make sure your printer has the right paper, and click *Next*. When the printing is done, click *Finish* if you like the result, or *Back* to change the layout or other settings and try again.

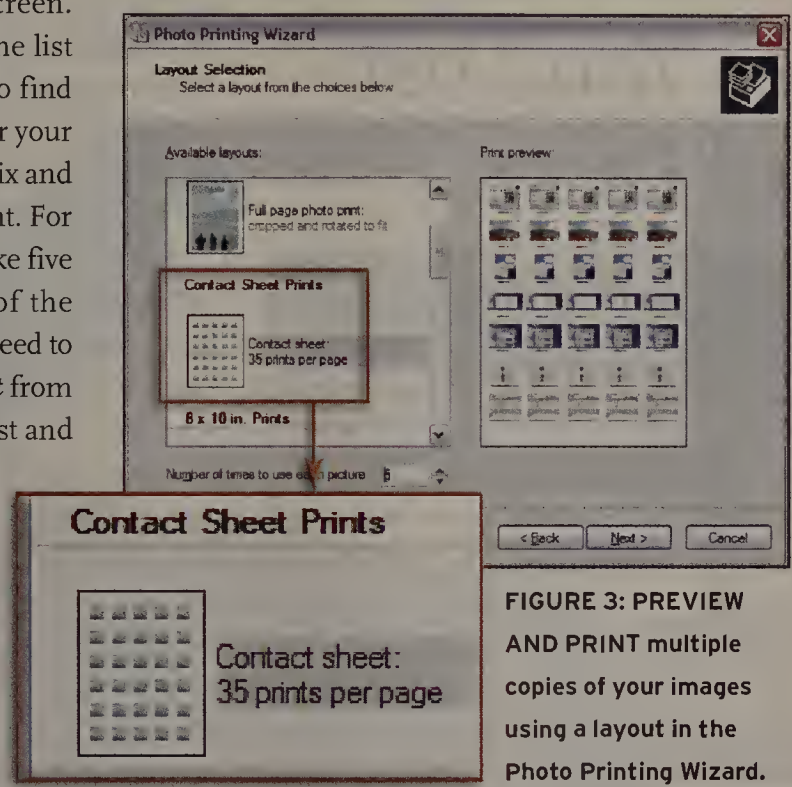


FIGURE 3: PREVIEW AND PRINT multiple copies of your images using a layout in the Photo Printing Wizard.

Use the Viewer with other apps: The Picture and Fax Viewer is handy for some tasks, but not others. Fortunately, the utility simplifies the task of finding the photo you want to work on and then opening it in a more functional image editing program such as Adobe's Photoshop. If you've already installed Photoshop, your image files may be associated with that program and you can skip to the next paragraph. If Picture and Fax Viewer is set as your default image viewer but you want to use another image editor, right-click the image file and choose *Open With•Choose Program*. Select the image application you want to use as a photo editor (click the *Browse* button to find it, if necessary) and check *Always use the selected program to open this kind of file*. End by clicking *OK*.

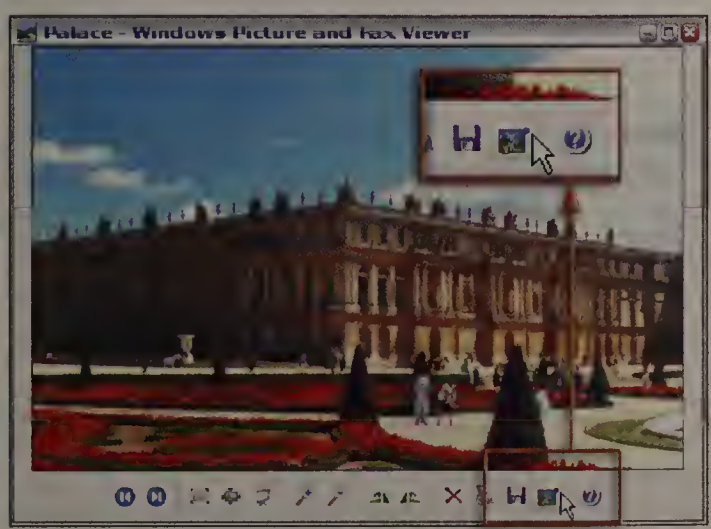


FIGURE 4: OPEN A PHOTO IN YOUR Image editor with a single click when you're finished previewing your images.

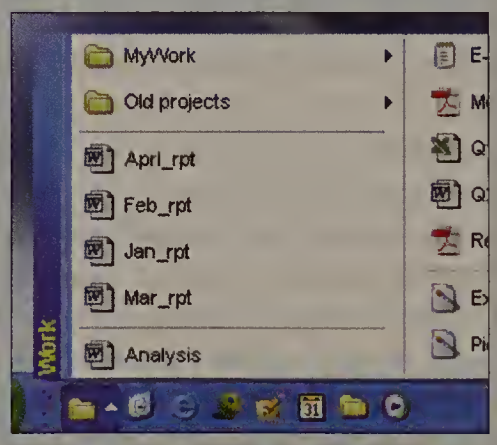
From now on, if you just want to view or print images, open them in the Picture and Fax Viewer. When you want to edit a photo or perform some other operation that the Picture and Fax Viewer can't handle, however, click the icon at the bottom right of the Viewer (between the Copy To and Help icons; see **FIGURE 4**), or simply press **<Ctrl>-E**. Don't right-click the image and choose *Edit*

WINDOWS TOOLBOX

Enhance Windows' Quick Launch With Free Launch Bar

Windows 2K XP 98 ME

WINDOWS' QUICK Launch toolbar (right-click the taskbar and choose *Toolbars•Quick Launch* if you don't see it) lets you create a shortcut by dragging an application, document, or folder from Explorer or any folder window to the toolbar. If you add too many shortcuts, however, Quick Launch becomes so cluttered it's nearly useless. TrueSoft's Free Launch Bar (www.freelaunchbar.com) adds many useful features that Quick Launch lacks. For example, the free program adds folders to the toolbar whose contents appear as highly customizable menus when you click them. (You can do this without Free Launch Bar, but only if you make the toolbar so small that the folders appear in a pop-up menu when you click the >> symbol.) And for even more functionality, you can spend $20 to get TrueSoft's True Launch Bar (www.truelaunchbar.com), which comes with plug-ins that display system info, weather forecasts, and more.



unless you want it to open in Windows Paint. Note that if you don't have a default image editor, the file will open in Paint.

Get instant slide shows: Last but not least, the Picture and Fax Viewer is useful for creating impromptu slide shows. Visit find.pcworld.com/46164 to read Dave Johnson's March *Step-By-Step* column for more on creating slide shows. ■

Send Windows-related questions and tips to scott_dunn@pcworld.com. We pay $50 for published items. Visit find.pcworld.com/31607 for more Windows Tips. *Scott Dunn is a contributing editor for* PC World.

HARDWARE TIPS

KIRK STEERS

Salvage the Files You Lost From Your Hard Drive

FOR BETTER or worse, it takes effort to truly delete files from your system. In most cases, files removed from a hard drive actually remain there until new files overwrite them. If a data-recovery program can find the files before they're overwritten, you have an excellent chance of restoring your data.

Whether a file was deleted accidentally or is inaccessible because of damage to the drive or its file system, remember the golden rule of data recovery: Act fast! The more you use a hard drive, the more likely the file will be overwritten and lost forever.

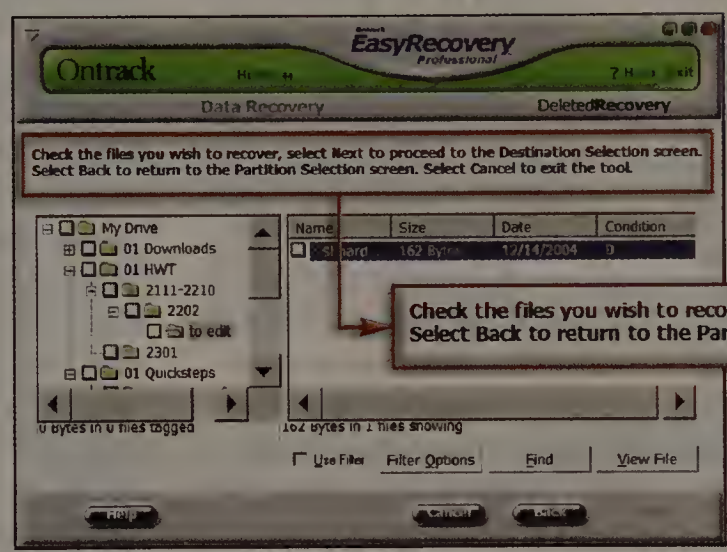


FIGURE 1: RECOVER FILES ERASED from your hard disk with an undelete utility such as Ontrack's $89 EasyRecovery Lite.

Undo a deletion: Files that have been "permanently" deleted—when you empty the Recycle Bin or press <Shift>-<Delete> to bypass the Recycle Bin entirely—aren't really deleted; Windows just alters each file name's first letter in the disk's bookkeeping system so the file will be ignored by the operating system. Windows tags as available all the space each file is using on the disk, designating the file as overwritable. Recovering a deleted file is therefore a matter of having a tool that restores the file's original name and retags the file before Windows or one of your applications overwrites it.

Symantec's $70 SystemWorks 2005 (find.pcworld.com/46548) includes an undelete program, and the free trial version of Ontrack's $89 EasyRecovery Lite 6 (find.pcworld.com/46550) will tell you whether a file is recoverable (see **FIGURE 1**). A free alternative is Brian Kato's Restoration utility (find.pcworld.com/46552).

If you use Windows XP or 2000, make sure the program you select supports the file system your hard disk uses, either FAT32 or NTFS (read on for more on Windows file-system differences). If you're not sure which format your hard drive uses, open My Computer, right-click the drive's icon, select *Properties*, and look to the right of 'File system'.

Repair damaged files: When you format a hard drive—or more accurately, a partition on a hard drive—you create the index that locates each file on the drive. Windows 98 and Me use the FAT or FAT32 file systems. Windows XP and 2000 use either FAT32 or NT File System (NTFS).

This index is known as the File Allocation Table (FAT) in FAT32 and the Master File Table (MFT) in NTFS. If either is damaged by a virus or completely overwritten by formatting of the drive, Windows has no way to locate the drive's files.

A data-recovery program may restore your FAT or MFT from backup copies, or reconstruct the index. If the index can't be fixed, however, a good recovery program will still be able to scan the drive to identify and recover some of its lost files.

Norton Disk Doctor in SystemWorks, the Scandisk application in Windows 98, and the Chkdsk program in all Windows versions identify bad sectors on your hard disks and move data to a healthy sector, but these utilities don't recover much data. I've had more success resuscitating lost files using EasyRecovery.

This program scans for files matching its database of 90 common file signatures. It can recover some or all of the files it identifies. EasyRecovery also fixes—or at least partially recovers—inaccessible Word documents and .zip files.

EasyRecovery Lite limits you to only 25 recovered files per session—but the program lets you run as many sessions as you need. The standard version, EasyRecovery DataRecovery, sells for $195 and lets you recover all the files you want in one session, but otherwise the two versions offer about the same features. ■

Go to find.pcworld.com/31511 for post Hardware Tips *columns. Send your tips and questions to kirk_steers@pcworld.com. We pay $50 for published items. Kirk Steers is a* PC World *contributing editor.*

POWER-HUNGRY HUBS

DO YOUR PC's USB ports supply enough electricity to power all the devices you have attached to them? Plugging too much gear into a bus-powered USB hub (one with no external power adapter) can overwhelm a USB port by demanding more than the 500 mA it can supply. Check the power demands on any USB port in Windows XP by right-clicking *My Computer* and choosing *Properties•Hardware•Device Manager*. Double-click *Universal Serial Bus controllers*, double-click the *USB Root Hub* entry, choose the *Power* tab, and add up the amounts in the 'Power Required' column.

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STEP BY STEP

SEÁN CAPTAIN

Polish Your TV's Picture

WATCHING A POORLY adjusted TV—whether it's the standard-definition variety or a high-definition set—is like being served overcooked food: Regardless of how much you paid for it, you're not getting your money's worth. And HDTV benefits from careful calibration even more than a regular set does. You can improve almost any TV's appearance by using a calibration program and the set's five basic controls, which are usually referred to as contrast, brightness, sharpness, color, and hue. My description of calibration follows the $50 "Avia Guide to Home Theater" DVD from Ovation Multimedia (find.pcworld.com/46546), but the procedure is similar with other calibration programs, such as DVD Acquisition and Development Group's $25 "Digital Video Essentials" (find.pcworld.com/46736). ■

Seán Captain is a San Francisco-based freelance writer.

1 **Set the scene:** You'll get the best effect by watching TV in a dimly lit room (theaters are dark for a reason). If you watch TV in a bright room, however, calibrate in that lighting. Hook up the DVD player to the TV with a digital visual interface (DVI) or high-definition multimedia interface (HDMI) cable, if either is available; if not, use a three-wire analog component-video cable.

Enter the set's on-screen menu and shut off any built-in features that promise to enhance flesh tones, edges, or black levels. Then choose a picture mode with a name such as 'professional' or 'movie'. Avoid settings such as 'vivid' or 'sports', which may increase the television's saturation, contrast, and/or brightness. Finally, select a neutral color temperature setting; in many cases it's labeled 'low' or 'warm', and it may also include either 'NTSC' or the number '6500' (browse to find.pcworld.com/47240 to read more about your TV's color temperature setting).

After your TV has warmed up for 30 minutes, insert the Avia DVD. You can watch the program's (slightly dated) tutorials, or you can skip to the calibration exercise by selecting *Chapter 7, Audio and Video Calibrations* in the main menu. On the screen labeled 'Chapter 7 Calibrations', choose *Basic Video Adjustments.*

2 **Adjust the contrast:** Select *White Level (Contrast, Picture)* to optimize whiteness. This setting uses the contrast control (sometimes labeled 'picture' or 'white level') along with a needle-pulses-and-steps pattern (see **FIGURE 1**). On CRT-based TVs (both front- and rear-projection models), set contrast as high as possible without widening the pattern's top white square or bending the two vertical lines on either side of the screen. On plasma screens, LCD panels, and LCD projection TVs, set contrast as high as you can without the top square's changing from white to another color. Watch the two faint vertical bars in the lower part of the screen. At the correct contrast level, the bar on the right will be almost invisible against the white background.

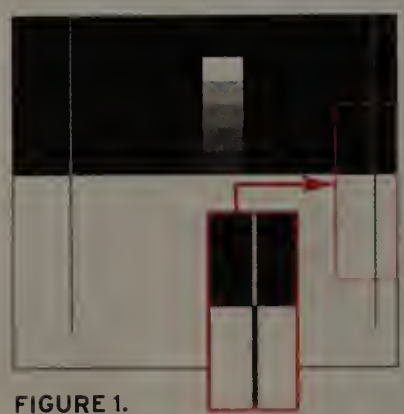

FIGURE 1.

3 **Find the right brightness:** Click *Black Level (Brightness)* to adjust the set's deep black. Set Avia's black bar and half-gray pattern so that the moving dark bar on the left blends into the background and the lighter bar on the right is just visible.

4 **Blunt the sharpness:** Choose *Sharpness (Peaking, Detail).* A TV's sharpness setting creates the illusion of crisper images by adding artificial details. To see the real picture, turn this setting down until the vertical lines across the top of the screen look evenly bright, and halos around lines and letters in the center of the screen disappear (see **FIGURE 2**).

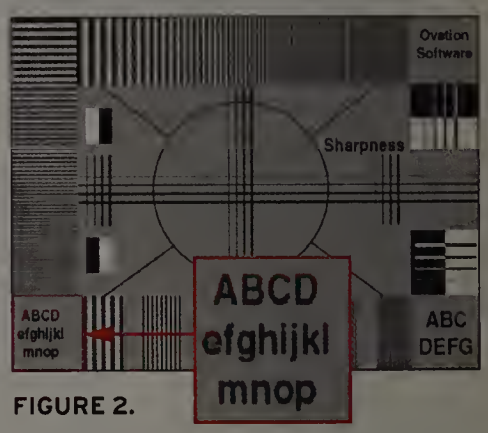

FIGURE 2.

5 **Tweak the color and hue:** Finally, select either *Saturation (Color, Chroma)* or *Hue (Tint)* to use Avia's blue filter to adjust the TV's color (both menu options will run the same tests and use the same patterns). Alter the color setting until the flashing inner squares blend as much as possible into the blue bars (see **FIGURE 3**).

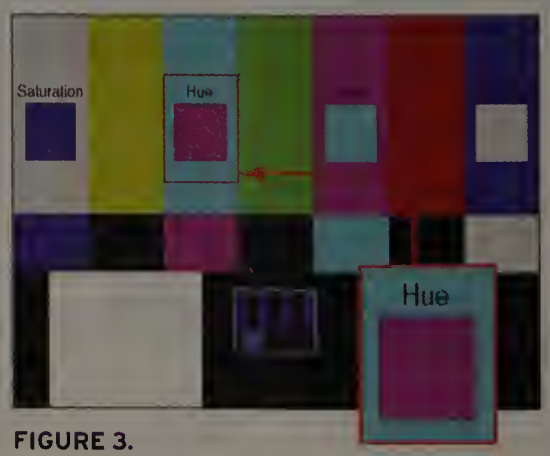

FIGURE 3.

6 **Watch for a while:** Images may now appear dimmer, colors lighter, and the focus softer. A properly calibrated TV more accurately reflects the look that the director intended. *Kill Bill* (both parts) will retain the bright colors and flashes that Quentin Tarantino envisioned, while *Mystic River* will have the gray skies and pale winter complexions that Clint Eastwood had in mind.

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ANSWER LINE

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Hide Your Internet Ports From Snooping Hackers

I ran Gibson Research's free ShieldsUp test (find.pcworld.com/46558) for PC security. The test found some open ports on my PC. How do I close them?

Fu Weikai, Singapore

STEVE GIBSON'S ShieldsUp service does an excellent job of testing your PC's security. Your computer uses the ports that the Gibson Research test probed to communicate over the Internet, but unscrupulous hackers can use the same ports to break into your computer.

Hackers use open ports—and sometimes even closed ones—to do mischief to your PC. But the scanners they rely on can't detect hidden (or "stealthed") ports.

A router with a built-in hardware firewall conceals ports: The router's ports, not your PC's, are visible on the Internet. Hardware firewalls cloak almost all of their ports by default, opening them only when necessary. (Software firewalls hide ports, too, but a router's firewall does an inherently better job. Of course, software firewalls are easier to update and reconfigure than routers, so if you have a broadband connection, it's safest to use both.)

Most routers close, rather than camouflage, port 113. Why do they do this? Once upon a time, some FTP, IRC, and SMTP servers used port 113 to verify where information was coming from. The port didn't have to be open, but it had to be visible to make the connection. If routers concealed that port, they'd block the network's access to a few outdated servers.

It's unlikely that a masked port 113 will ever cause you problems. On the other hand, a closed port 113 on a server is not a major security flaw...yet. Someday, a hacker may discover a flaw in port 113 in a popular router, and that could mean trouble. In the long run, you'll be better off hiding this port than closing it and leaving it visible.

Unfortunately, this port is not always easy to hide. The job requires that you reconfigure the router so that it will forward port 113 to a nonexistent IP address, such as "192.168.0.250." How you do this differs from one router to another, and the process isn't always obvious. On my D-Link router, for instance, the setting for forwarding ports is called "Virtual Server"—which is technically accurate but not really very helpful (see **FIGURE 1**). Check your router documentation and the vendor's online help for details.

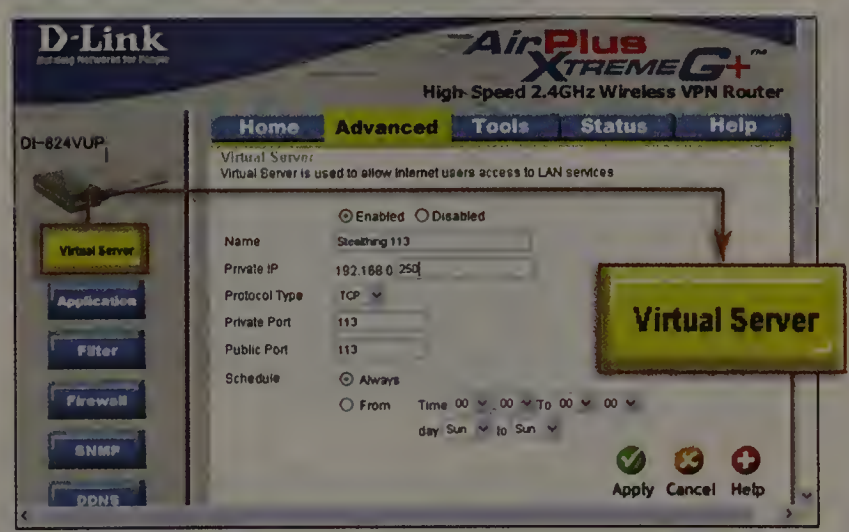

FIGURE 1: HIDING PORTS ON YOUR hardware firewall isn't always intuitive: This D-Link router calls port forwarding "Virtual Server."

'NEW' MESSAGE GETS OLD

When I install a new program and click the Start button, Windows XP tells me that I have new programs installed, and the programs are highlighted for a time. How can I turn this feature off?

Andrew Steinberg, via the Internet

I'VE NEVER NEEDED this reminder, though I know people who like the highlighting because it makes new programs easier to find on a crowded Start menu. To remove it, right-click the *Start* button and select *Properties•Start Menu•Customize•Advanced*. Uncheck *Highlight newly installed programs*, and click *OK* twice.

PRINT FONTS AND SAVE PAPER

How can I save some trees by printing multiple font samples on one page in Windows?

Jeff Luckett, Bartlett, Tennessee

USE THE FONT THING, a free program created by Sue Fisher (find.pcworld.com/46560). To print multiple samples, <**Ctrl**>-click fonts in the left panel, and then click the Print icon. Fonts need not be installed for you to examine and print them. ■

Send your questions to answer@pcworld.com. Answer Line *pays $50 for published items. See find.pcworld.com/31577 for more* Answer Line *columns. You'll find Contributing Editor Lincoln Spector's humorous and other writings at www.thelinkinspector.com.*

READ SUSPECT MAIL SAFELY

HAVE YOU EVER hesitated to open an e-mail because you were afraid something nasty might be lurking inside? Reader John Ehrenborg found a way to read an Outlook Express message before opening it. Right-click the message, select *Properties*, and click *Details* to read the message's header, which may give a clue as to its origin. If the header is too cryptic, click *Message Source* to read the message itself in an inert, nonrunning mode (you'll see HTML code, but scroll down to view the message's text). In Outlook, to examine the headers, right-click the message and choose *Options;* you can't view the source or text, however.

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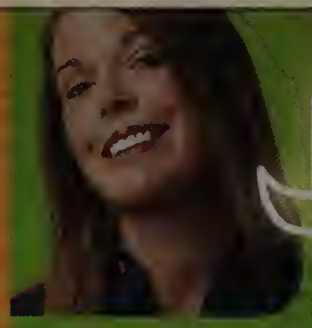

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FULL DISCLOSURE

STEPHEN MANES

The Weird New World of Hardware Fixes

THANK THE NET FOR endless software updates. Some programs—such as antivirus utilities and Windows itself—let you get them automatically. More often, as with drivers, you have to find new versions on your own.

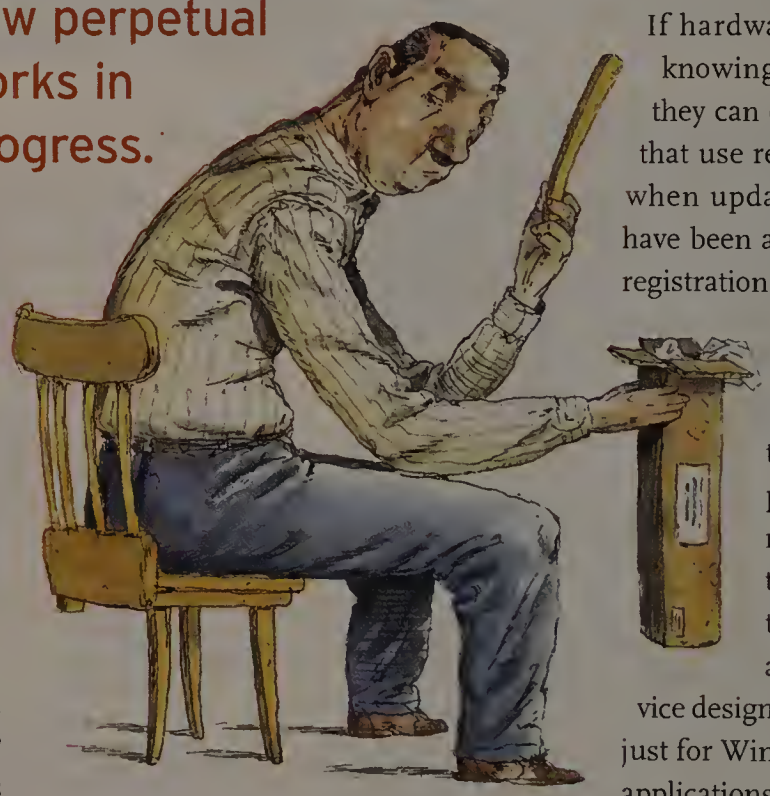
Hardware updates and fixes used to be confined to computers' BIOS firmware. If you kept checking back with the manufacturer, you might eventually find the bytes you needed to reflash the ROM. If you didn't check, maybe you'd be lucky and have no trouble. Or maybe you'd have trouble but never suspect the all-important BIOS. One thing was certain: The manufacturer would never contact you to tell you an upgrade was available.

Today some computer makers do send you alerts about BIOS fixes. But just about every other piece of hardware—from cell phones to routers—has reprogrammable ROM in it, too. Hardware makers have begun to treat their products like software, releasing unfinished versions and planning for eventual fixes and features that should have been included in the first place. And once again, you'll never find out about most of these updates unless you assiduously seek them.

At a recent trade show, a company rep assured me that a forthcoming camera with a Wi-Fi option would handle WEP encryption. Nice, except that WEP is hopelessly broken. So what about the far safer WPA? A postrelease upgrade, date unknown, would handle that, the rep said. Translation: We're not about to hold this thing up till we get it right. We'll let our customers find, download, and install the security fix when it's ready.

Same story with portable music players that handle Windows Media files. Napster currently offers a great-sounding deal: a $15-per-month subscription plan that gives you access to over a million songs and lets you transfer them to players that support Windows Media copy protection. (For more, see "Napster Adds Mobile Music Subscriptions" on page 56.) Alas, as I write, virtually no music players on the market support this feature. How will you get it? Via firmware upgrade. How will you find out about that? Esteemed customer, we leave that to you.

Good news! All products are now perpetual works in progress.



With software, this dance has been going on forever. My very first software purchase, a 1982 copy of WordStar, urged me to register it, so I did. When WordStar offered an upgrade that worked properly with the version of DOS I owned, did the company use the registration info to alert me to the improvement? Three guesses.

Much of the hardware that crosses my desk—printers, music players, you name it—eventually needs upgrading. Either the device firmware is faulty or incomplete, or the drivers are. But I can't recall many times when a company used my registration info to tell me about an upgrade—unless it was asking me to pay for it.

If hardware companies are going to knowingly sell incomplete products, they can damn well develop databases that use registration data to notify you when updates are available. This may have been a problem in the era of paper registration cards; in the Web era, there's no reasonable excuse.

But don't expect hardware manufacturers to pay attention. When I pointed out the problem to software companies in the early eighties, they turned a deaf ear to me. It has taken till now for Bill Gates to announce a single update service designed to offer automatic fixes not just for Windows but for other Microsoft applications, such as Office.

Will it give you a hand with hardware fixes? Three more guesses. ■

Contributing Editor Stephen Manes is cohost of PC World's Digital Duo, *debuting soon on public television stations nationwide—as well as on the Web at www.pcworld.com/digitalduo.*

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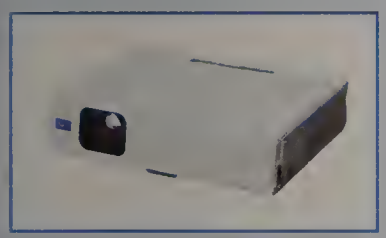

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- 1366 x 768 high-definition display
- DVI-HDCP, RGB/component, composite S-Video inputs
- Rear-panel cable management system
- Split screen and picture-in-picture
- Available in silver, black, and pearl white

$2,699.99 *Leasing starts as low as $72.36 per month*[6]

UPGRADES

- SSSP32FW/S Sony silver speakers for $275 (also available in pearl white)
- Upgrade to the 42" FWD-42LX1/S LCD display for $5,469[8]

Leasing and Service Information Getting the Sony business advantage is now easier than ever. Choose from a variety of extended service plans, competitive leasing offers, and installation options for affordability and assurance. Call a DirectPoint℠ sales support specialist for details.

Cash in with low lease payments.[6] 48-month payment terms with Fair Market Value purchase option at end of lease. Ask us about other financing options.

$400 OR MORE BACK. TRADE UP AND GO PRO.

TRADE IN YOUR QUALIFYING NOTEBOOK FOR A MINIMUM $400 REBATE BY MAIL WITH THE PURCHASE OF AN ELIGIBLE SONY VAIO PROFESSIONAL NOTEBOOK.[9]

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Limited Warranty for details. On-Site Service will be provided via third-party technician to be dispatched as needed following phone-based troubleshooting. Some repairs may be accomplished with self-repair kits. On-Site Service may not be available in all locations. 4. DVD media/formats are not universally compatible. 5. Requires compatible wireless access point. Some functionality may require Internet connection, which may require a fee. This product has been tested and certified to be interoperable by the Wireless Ethernet Compatibility Alliance and is authorized to carry the Wi-Fi logo. 6. Monthly payment shown is based on a 48-month term with Fair Market Value purchase option at lease end. Lease arranged by Sony Financial Services. Available to qualifying commercial, government, and education customers for a minimum transaction value of $750. Documentation fees, security deposits, or advance payments may be required. Taxes, fees, and shipping are not included. Terms are subject to credit approval and execution of standard documentation. Offer subject to change without notice. Other terms available upon request. 7. ANSI lumen is a measuring method of the American National Standards Institute IT7.228. Since there is no uniform method of measuring brightness, specifications will vary among manufacturers. 8. See www.sonystyle.com/esp for complete Terms and Conditions. 9. Purchase or lease a new Sony VAIO Professional notebook, and trade in your qualifying pre-owned Windows-based notebook computer before 5/31/05 to receive a minimum $400 rebate by mail. Visit www.sony.tradeups.com/sony_terms.asp for Terms and Conditions.

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